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THE UNIVERSITY OF ALBERTA

PRE-SERVICE TEACHER TRAINING OF ADULT EDUCATORS IN SINGAPORE- A FOLLOW-UP STUDY

by

MADELINE KENNEVAN NEEDHAM

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF

MASTER OF EDUCATION

IN

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PRE-SERVICE TEACHER TRAINING OF ADULT EDUCATORS IN SINGAPORE- A FOLLOW-UP STUDY

ABSTRACT

The Vocational Industrial Training Board of Singapore was established in 1979 to provide vocational training. The Board launched two adult upgrading programs, Basic Education for Skills Training (BEST) and Worker Improvement through Secondary Education (W.I.S.E.) and requested the Alberta Vocational College (A.V.C.)/Edmonton to conduct training sessions for the BEST/WISE teachers.

These sessions encouraged the teachers to try a student-centered approach despite the tradition of a content-centered approach. The purpose of this study is to ascertain the perceptions of the teachers on the effectiveness of the training now that they have adult education experience.

The data were gathered by a questionnaire with follow-up classroom observations and teacher interviews. The objectives of the research were to determine:

-if there was acceptance of the ideas presented;
-if not accepted, why not;
-the needs as perceived by the teachers for future training.

When the extent of the teachers' support for a collaborative learning style was measured by the Principles of Adult Learning Scale (PALS), the mean scores of the Singapore teachers were significantly lower than the North American norms. There were no significant differences on PALS scores between sub-groups characterized by age, gender or experience, however, in a few cases, there were significant differences between sub-groups characterized by certification and subject speciality. The

classroom observations did not corroborate this result; the certified teachers did not display a more collaborative teaching style.

The teachers identified the major constraints to attempting a different style as time, examination pressure and the students' shyness. The two most successful techniques identified by the questionnaire were small group work in English and varied problem solving techniques in mathematics. The classroom observations indicated that these techniques were not used effectively. The top four items identified for future training topics were: updating speciality for English teachers, motivating adult learners, questioning techniques, and diagnosing learning problems.

The questionnaire results, classroom observations and teacher interviews identified the need for:

-in-service training,
-more resources,
-a BEST/WISE teachers' network,
-more classroom visitations,
-modification to the examination system, and
-more emphasis on spoken English.

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CHAPTER I
INTRODUCTION

BACKGROUND OF STUDY

The Vocational and Industrial Training Board of Singapore (V.I.T.B.) was established in 1979 as a national authority and given the responsibility to promote, develop and provide vocational and industrial training. Along with developing a structure capable of meeting the ongoing changing needs of vocational training, the board faced the major challenge of making vocational training an attractive alternative for school leavers. Dr. S.S. Law , Director of the V.I.T.B. stated that:

> "In an environment where a high premium has been traditionally placed on academic achievment, the motivation to undertake voluntary vocational training cannot be taken for granted. There was a 'negative' image to overcome through instituting a systematic structure of vocational training, promoting the desirability of skills acquisition and publicising appropriate messages to the public and schools." (Law, 1985, p.6)

The system of vocational training was restructured to provide various pathways to vocational certification for students in the educational system.

At the same time the V.I.T.B. looked to upgrading the workers already employed. Singapore was in the enviable position of having virtually full employment and a burgeoning economy. The economic thrust of the government was toward economic

diversification. High technology, skill intensive industries were financially encouraged and labour intensive industries were discouraged. However the limiting size of the country (approximately 620 km^2) and dense population (approximately 2.5 million) precluded continued importation of skilled workers. Faced with this shortage of skilled labour, the government looked to upgrading the over-18 year old population. The Republic of Singapore, officially established in 1965, has four official languages: Malay, Chinese(Mandarin), Tamil and English. Engish was established as the administrative language, and education is delivered in English. In 1979 many Singaporean workers, older than 25 years, had minimal English skills.

Therefore the V.I.T.B. entered the field of adult basic education by launching an upgrading program in English and Mathematics called Basic Education for Skills Training (BEST). Companies were encouraged to offer BEST classes on site to accomodate shift workers, while other BEST classes were conducted in the evenings at schools. Some of the instructors were accredited teachers in the regular school system, while others were company personnel with little or no educational methodology. Very few of the teachers had previous experience with teaching adults. In June 1983 while on a tour of North America and England, Dr. Law Song Seng and Mr. Young Pak Nang of the V.I.T.B., visited the Alberta Vocational College in Edmonton, Alberta (A.V.C.) to discuss issues related to Adult Basic Education. They decided that the practical experience

gained by the A.V.C. staff in working with educationally disadvantaged adults would be useful for the BEST project. The joint A.V.C.-V.I.T.B. Adult Education Project began in 1983 with the A.V.C. conducting a needs study for the BEST teacher training. Following that study the V.I.T.B. requested the assistance of the A.V.C. in designing and conducting a series of 8-day workshops on adult teaching techniques for instructors of the BEST program. The key objectives of the wokshops were to train the instructors in the principles and practices of teaching adults and in the use of instructional techniques and media. Subsequent to the delivery of 5 successful workshops for over 800 participants, the V.I.T.B., in 1987, requested that A.V.C. develop another adult education course specific to the new Worker Improvement through Secondary Education program (WISE). The WISE program is intended to take the workers beyond the BEST primary school content to the secondary 'O' levels. All WISE teachers are accredited teachers.

Various staff members from the Academic Upgrading and English as a Second Language departments of the A.V.C. conducted the Teacher Training Sessions in Singapore. Also at different times during this period from 1983 to the present, seven A.V.C. staff members were seconded to the V.I.T.B. to work on curriculum design and text book development in English, Mathematics and Science. All faculty members have found the involvment an enriching experience as stated by Dr. Michael Andrews, President of the A.V.C:

"I am especially pleased that my staff have been afforded the opportunity to contribute to this important project, because often teachers do not have the opportunity to share their experiences, least of all in a setting on the other side of the world." (Andrews, 1984, p.1)

PURPOSE OF STUDY

The A.V.C. teacher training sessions encouraged the BEST/WISE teachers to try a student-centered approach despite the tradition of a content-centered approach in the Singapore education system. As the drop out rate was very high in the early stages of the BEST program, it seemed that a new approach was warranted. The students attend class after a full day's work or between shifts, therefore more activity and involvement are necessary to motivate the students. The pre-service training included theory of adult education and specific methodology for teaching Mathematics and English, based on the principles of a student centered adult education philosophy, which was consistant with the BEST/WISE curriculum design. The sessions which included role of the teacher, lesson planning, classroom management, subject methodology and micro-teaching, all focused on the seasoned proverb:

> *Tell me I'll forget, show me I may remember, but involve me and I'll understand.*

The last session, offered in December 1988, trained local staff to take over the teacher training, so it is critical at this time to identify the degree to which the practitioners, who took the

previous courses, support and adhere to the student-centered collaborative teaching mode and ascertain their perceptions of its effectiveness. The major goal of this study is to make future VITB teacher training more effective. The secondary goal is to generalize the findings to other similar pre-service training which attempts to initiate a change in established educational technique and practice.

STATEMENT OF THE PROBLEM

This research is intended to determine if the teacher training was effective in promoting a student-centered approach for the BEST and WISE courses. The thrust of the study is to determine:

1. if the teachers favor a student-centered or subject-centered approach,
2. if the teachers are using any of the methods suggested,
3. if used, are the methods effective in the BEST/WISE setting, and
4. if the teachers are not using any of the methods, what are the reasons.

OBJECTIVES OF THE STUDY

The objectives of the research are to determine:

1. If there was acceptance of the educational technology, presented in the Teacher Training Sessions [technology is used here in the sociological usage which embraces all forms of productive techniques, including management, work groups and physical layout, which are the consequences of human decision-making. (Abercrombie et al, p. 251)];
2. If the technology was not accepted, why not; and
3. The most critical concepts and methods, as perceived by the BEST/WISE teachers, around which any future teacher training should be planned.

GENERALIZABILITY OF THE STUDY

Although this project investigates the particular situation in Singapore, the results of this study could be generalized to a similar adult upgrading project which attempts to initiate a change in any society's established educational technology. However any such generalization must consider the difficulties inherent in cross-cultural studies, some of which will be discussed in the concluding chapter. In the next chapter, the literature review begins with a look at the role of the teacher in educational diffusion and at the field of adult education.

CHAPTER II
A REVIEW OF THE LITERATURE

There are three types of research methodology, historical, descriptive and experimental. Although the main thrust of this project is descriptive, the author contends that a knowledge of the historical context is essential to understanding the current situation. The purpose of historical research is to determine some possible causes of today's events. Therefore, a section of the literature review is devoted to a look at the history of education in Singapore.

The literature reviewed for this study includes five topics:

1. Educational Technology Diffusion
2. Education in Singapore-A Historical Perspective
3. Andragogy
4. Principles of Adult Learning Scale
5. Participatory Action Research

CONSTRAINTS ON DIFFUSION OF EDUCATIONAL TECHNOLOGY

In order to determine if the teacher training was effective in promoting a more student-centered approach in accordance with the new BEST/WISE curriculum, it was necessary to investigate the role of teachers in the diffusion of educational technology innovations.

Dove (1986) in Teachers and Teacher Education in Developing Countries attempts to clarify the contemporary role of teachers in

schools and society. Dove elucidates the title of the book by pointing out that:

> the term 'developing' is an inadequate and unsatisfactory label for all the varied contexts and conditions in which teachers operate, and that the issues discussed have relevance also in many industrialised 'developed' countries. (p.2)

In most societies, teachers are charged with passing along traditional values, knowledge and skills and with introducing change. Simultaneously, they must work as purveyors of traditional knowledge and innovative change agents. Usually the teachers are treated as technicians. Far too often after the 'difficult' task of curriculum development is completed by 'experts' the 'easy' task of implementation is handed over to the teacher-technicians who receive a brief indoctrination to the new system. Dove argues that innovations are unlikely to succeed unless administrators pay more attention to 'teachers' attitudes and behaviors and their responses to proposals for educational change'(p.4). In turn, a given society's willingness to accept innovations is determined by its perceptions of the usefulness and relevance of the change. Therefore, educational planners and administrators must look to acceptance by the front-line change agents, the teachers, and to the broader issue of societal acceptance.

Dove identifies three different styles of curriculum development which are based on different assumptions of the role of the teacher in curriculum development.

1. Research, Development and Diffusion (RD&D) RD&D is a top-down strategy used for large-scale reform. "Experts at the centre explore strategies, research feasibility and set curricula aims and objectives"(p.53). Sometimes, a few selected teachers take part on advisory panels or in pilot school studies. In the RD&D strategy, teacher training and orientation may be neglected.

> At best, most teachers may attend a short crash course where they have lectures on the the innovations and take a look at some of the new materials. They have little chance to practise new skills or to have support and advice when attempting to use them in the classroom. (p.54)

2. Social Interactionist This strategy attempts to compensate for the weakness of the RD&D approach which neglects the teachers' role. It is still a centralized planning technique, but it assumes the existence of a network through which teachers may interact to share experiences and participate in the curriculum development. The Social Interactionist approach may not be as efficient as RD&D, but it does use the initiative and experience of the teachers and provides local support and advice for professional development.
3. Problem Solving This is a bottom-up strategy and is the most teacher centered. It does not easily fit with central planning. The basic assumption is that teachers can be encouraged to innovate when they have a specific classroom problem to be solved, and that they will initiate their own research, if there

is a network of professional resources to tap, i.e., training institutions, consultants and advisors.

In actual practice, curriculum reform usually contains some aspects of all three ideal types. The Social Interactionist approach can best combine the aspect of centralized reform and teacher participation. There is a wealth of information about planned educational reforms, both large and small, but there is a dearth of evaluative material on the process and outcomes of these plans (p.56). Therefore, it is hoped that this project will contribute some evaluative information on the process and outcome of an attempted educational reform.

There are practical difficulties that frustrate educational innovations, such as lack of funds, administrative support and resource constraints. Managers may find themselves involved in a lot of extra work as a result of a curriculum development project with which they have little knowledge or sympathy. Such administrators may not be flexible enough to provide the necessary resources, even when funding is available.

Teacher-related constraints are also of primary importance. Teachers who have low levels of general education and/or inadequate training generally lack the confidence to attempt new activities and continue with 'safe' teaching routines.

> If their training has not provided them with understanding and sympathy for the crucial part they can play in translating curriculum plans into reality, then they are likely to resist attempts to impose on them additional and unconventional

> tasks. By training and experience, through pressures on them from administrators, parents, and examination systems, teachers may have very restricted conceptions of their responsibilities as professionals which limit their preparedness to take part in innovatory activities. (pp.59-60)

After discussing the constraints on teachers that prohibit acceptance of curriculum innovations, Dove suggests five conditions under which teachers can participate fully in educational innovations.

1. Teachers should be oriented in their initial teacher education to the critical role and potential they have in curriculum development, so that they don't see their role as merely transmitting a syllabus.
2. Teachers should receive in-service training, according to their needs and level of competence. Some will need upgrading in the subject matter, others can evaluate centrally produced materials, while a few can attempt creative initiatives.
3. Whenever teachers are expected to implement changes, an initial orientation is necessary but not sufficient. Equally important is follow-up training and on-the-job support.
4. Principals/managers must be well-trained in order to support the teachers at the local level and to liaise with central planners.
5. On the basis of their achievements and potential, identified 'good' teachers must be eligible to participate in central planning activities on a rotational basis.

Although all teachers have a role to play in curriculum planning and development, their major role is in the manipulation of the materials in the classroom. Curriculum specialists are necessary, but equally important is the training and support of the classroom teacher.

Examinations play a large part in how teachers interpret curriculum change. One hallmark of a good teacher is the ability to help students pass examinations. This is critical in any society where external examinations select the students who proceed to scarce post-secondary education and jobs. Examinations allocate life chances. Examination pressures determine which part of the curriculum teachers will concentrate on and which part they will neglect. In 1982 the Malaysian authorities determined that the reason teachers were neglecting Civics in secondary schools, even though it was a compulsory subject, was that it was not tested in the common examinations. This is an example of the common phenomenon, 'no test, no teach'.

Examination pressure can also affect the way teachers treat their students. If the school authorities are mostly concerned with examination results, the teachers can easily develop a 'teach the best and forget the rest' attitude. A high drop-out rate is acceptable, if those who stay are productive on the examination. In streamed schools, often the best teachers teach the ablest students, while the poorer or inexperienced teachers are assigned to the difficult and slower students.

However, no one has come up with a suitable alternative to examinations for certification of large numbers of students. The problem is not with examinations per se, but with bad examinations and overemphasis on them. A more appropriate stance towards examinations might be: don't deplore them; improve and judiciously use them. It is also important that the evaluation process is consistant with the curriculum and the pedagogy.

In Knowledge and Control-New Directions for the Sociology of Education, edited by Young, Bernstein, 1971, explains that formal educational knowledge is realized through three message systems, curriculum, pedagogy and evaluation. Bernstein defines curriculum as the principles by which units and their content are brought into special relationship (p.48). He identifies two types of curriculum, collection and integration. In a collection curriculum, the most common North American format, the learner collects specialized units of content. The learner is expected to take a prescribed number of science and arts courses which are mutually exclusive of each other. In an integrated curriculum the units are not rigidly divided into academic subject speciality.

Bernstein then discusses Classification and Framing of the educational message systems. Classification refers to the degree of boundary maintenance between contents; classification is the basic structure of the message system curriculum. Framing is the basic structure of the message system pedagogy. Framing is the relationship of teacher and taught that regulates the range of options available to teachers and students. Strong framing reduces

the options of the teachers and the students; strong classification results in a highly specialized curriculum. China and England have historically favored strong classification in curricula. China has strong framing, i.e. few options for teachers and students; the English system has a weaker framing relative to China and the rest of Europe, but stronger framing than in the United States.

The underlying principles of the meassage systems are based on the social structure and principles of the society. Those in power determine the 'educated man' and establish 'what counts' in the curriculum. Changes in the power are reflected in curriculum changes. But organizational changes will have little effect if there is no change in the relative strength of classification and framing. The cooperation of the teachers depends on their perception of 'what counts' as knowledge in the curriculum and what are their options. It is critical that the message system, evaluation, is consistent with curriculum and pedagogy. Open discussions regarding assessment are vital, so that the teachers and students understand the criteria of evaluation in order to consider the significance of what is taught and how it is taught.

The importance of the traditions in a society must be considered in educational policy which must move ahead but not violate tradition. In Contemporary Chinese Education, edited by Hayhoe, Holmes (1984) states:

> Relatively few post-war nations satisfy the 'ideal nation' criteria.... Few possess populations who speak the same language, accept the same religious beliefs, belong to the same race, or subscribe to one secular ideology. Diversity of

> language, religion, race and political creed characterize most nations today. Of central concern to most governments has been how to create, and have internalised, a national ideology while allowing for linguistic freedom and racial equality. Deeply held traditions have made the task very difficult. An appeal to tradition might well mobilise a feeling of identity but prevent modernisation. On the other hand, some traditions reinforce diversity in terms of language and religion. (p.9)

The educational message systems in Singapore are deeply rooted in the Confucian educational traditions of scholarship overlaid with the British system. For that reason a brief look at recent history in Singapore is critical to understanding the implications of the government's relatively recent move into vocational training and adult education and the acceptance of related new educational technology.

EDUCATION IN SINGAPORE-A HISTORICAL PERSPECTIVE

Teachers' perceptions of their role and the work they do are influenced by the history of the setting in which they operate. To understand the BEST/WISE adult education in Singapore today it is necessary to look at the history of education and the educational model of development in Singapore.

In 1959, following a violent and bloody struggle for freedom, Lee Kuan Yew became the official leader of a small and very poor country . His leadership was tenuous, and he was concerned about the interference and influence of Indonesia. Lee had an obsessive determination to educate the people, and to do it quickly, in order to develop an entrepreneurial nation. For thirty years, he steered the tiny nation state to its current status as one of the successful newly industrialized countries of Southeast Asia.

> Singapore's performance in achieving a high standard of economic development, in developing considerable social cohesion, and in establishing a secure place in its region and in the wider world, establish it as an exceptional case and of special interest. And central to its strategies and performance has, of course, been the operation of its educational system. (Hunt, 1987, p.109)

In 1959 when Singapore finally became independent of Britain, she was a nation of coolies and shopkeepers with massive unemployment, badly damaged physically and psychologically by the Japanese occupation and the post war struggle between the supporters of the communist underground movement, with roots in China and operating out of Malaysia and Indonesia, and the series of interim governments sponsored by the British. Unlike post-war

Japan Singapore did not have a cadre of scientists and technicians, a productive capacity nor massive American aid. Her assets were an English educated intellectual elite, who begrudgingly admired the British educational and civil service system, and one of the most well-protected harbors in the world with a strategic location in Southeast Asia.

The only other resource was the people, but they were a diverse lot divided by race, language, religion and political affiliation. The Malaysians were the indigenous people to the region who followed the Moslem religion, spoke Malaysian and were politically more comfortable with the government across the causeway in Kuala Lumpur, Malaysia than that of the British-influenced Chinese majority in Singapore. Today the Malaysians make up less than 20% of the Singapore population. The Chinese, who currently make up about 75 % of the population, already formed the majority after the the Second World War. They, in turn, were inimically divided into the Straits Chinese or *Babas*, the Chinese born in Malaysia and Singapore who were the Queen's subjects and the vast numbers of Chinese, *Sinkehs*, who came to Malaysia after the Taiping rebellion. The *Babas* mixed the Chinese and Malaysian cultures in their colloquial language, cooking and clothing; they wanted their children to have an English education and were distrustful of the *Sinkehs*. The Chinese spoke a variety of dialects, Cantonese, Hokkien and Teochew, rather than the universal Mandarin and were mostly Buddhists. The Indian Hindus formed the smallest group and spoke Tamil.

The Singapore anthem is sung in Malaysian, the national language, but the official language is English; the Chinese speak their individual dialects and are expected to know Mandarin and English, and a surprising number of Indians know all three plus Tamil!! Casual visitors marvel that the language issue was solved so easily in multi-racial Singapore. The truth is that it is a painful memory, and Singaporeans would rather forget it and talk about places to eat or shop in today's modern, sophisticated, spotlessly clean nation-state, the Garden City of Southeast Asia.

The question of the language medium of education for children was a highly explosive issue from 1950 to 1970 that resulted in violence, student deaths and political intrigue. Education is a critically important factor in a multi-racial, multi-linqual developing country. To understand the language issue in Singapore and its unique solution it is necessary to go back briefly to 1948 across the straits to the jungles of Malaysia.

The Communist Party was strong in Malaysia and Singapore after the war and for good reason. The British had fled the country, or been captured and therefore lost prestige; they were no longer invincible. Many of the pre-war Chinese immigrants brought with them a hatred of the Japanese, and they went underground in the jungles to harass the Japanese throughout the occupation. The British eventually made contact with them and sent over their own guerilla fighters and weapons. But the communist guerillas were the local heroes and the British needed their support in the hectic days after the war to create some stability, so they permitted the

communist party to surface. When the government cracked down on violence in the union movement, the communists retreated back to the jungle and dug up their buried guns. There followed a reign of terror in Malaysia for 12 years, with atrocities on both side, that was euphemistically called the 'Emergency'.

In Singapore the communists were at a disadvantage. Whereas Malaysia offered large expanses of jungle, Singapore had only the Botanic Gardens, a lovely area, but not conducive to guerilla warfare. So the communist party had to remain above ground, and make certain that they were not outlawed as a political party. They needed an alliance, and Lee Kuan Yew's Peoples Action Party (PAP) was socialistic enough to provide a room in the left wing of the house for the communists.

It was an unhappy marriage united only in the desire for freedom from Britain. PAP knew that after independence the partner would turn on them, but they needed the communists' broad popular base. Lee commented to reporters that 'We were riding a tiger and we knew it', but his first lieutenant, Goh Keng Swee, put it more forcefully 'We were five foolish men and we walked right into it' (Bloodworth, 1986, p.82). What they walked into was16 years of intrigue and bloodshed to determine who would leave the marriage with custody of the child. PAP finally won out; probably because Lee was as single minded and willing to justify the ends by the means as were many of his adversaries. When he was Prime Minister he denied to his own National Security Force that he recognized a picture of the 'Plen', the wanted

leader of the Communist movement. However Lee and the 'Plen' had worked together and continued clandestine meetings, where they each tried to use the other's power base for their own ends, until 1961, when the communist forces resorted to street violence in a last bid for take-over. Only then did Lee cease personal contact with his deuteragonist in the drama for control of Singapore.

Lee Kuan Yew's aggressiveness and ability to 'get his way' was evident when he won a place in the post-war crowded London School of Economics in 1946. He should have behaved like a dutiful colonial transported from the far reaches of the empire. But he didn't. Lee did not like London, so he pressured Cambridge for admission to read law. When they agreed and took him in a full semester late, he was still not satisfied. His future wife, the recipient of a Queen's scholarship, could not find a spot in crowded academic England, so he lobbied for her admission to read law. When that battle was won, there was still another minor skirmish to be fought. His girlfriend was housed at the other end of town, so he requested a change of residence. He was not a simple subservient colonial; he was one of the English educated *'Babas'* who formed the intellectual elite of Singapore, an important human resource for the country in the years to come.

They were the ones who solved the problem of the choice between the educational system of the 'daffodils' and that of the 'snowflakes'. The Chinese children in the English schools read from English textbooks with little relevance and learned nothing of their cultural heritage. In the Chinese schools, the children learned the

Confucian dogma by rote and were also imbued in the doctrines of Mao Zedong.

> While Chinese children in English schools were blankly contemplating 'ten thousand golden daffodils', Chinese children in Chinese schools might be reading just as blankly about 'ten thousand miles of snowflakes', for in equatorial Singapore they had no more seen snow than they had seen spring flowers. But if one line was taught openly in class and offended the anti-imperialist sons of the *Baba*, the other was imbibed secretly outside and inspired the anti-imperialist sons of the *Sinkeh*. For the first was by the English poet Wordsworth, and the second was by the Chinese poet Mao Zedong. And between them they symbolised a confrontation of two implacably arrogant societies. (p.55)

And the confrontation took place openly in the schools of Singapore even before it took place in the streets.

The Colonial British official policy was to organize education along ethnic diversity; the education system in Singapore and Malaysia served to divide the people rather than unite them. In 1834 both Malaysian and English-medium 'free schools' were established, 'free' meaning that they were open to all races but a fee was charged. By 1842, the Malaysian schools closed due to lack of local support. In 1855, the colonial government again promoted vernacular education, meaning the indigenous language of Malaysian, with government funds made available to match private contributions. The merchants, however, wanted education in English, the linqua franca. Consequently, public apathy for Malaysian schools and lack of funding for English schools caused all education to suffer, and most of the Malaysian schools were closed by 1893.

Three Chinese school were in existence by 1829, but there were few Tamil-vernacular schools due to the relatively small number of Indians, lack of funding and public support. A labour law enacted in 1912 required large estates in Malaysia to provide vernacular education in Malaysian, Tamil or Chinese. The Chinese community vernacular schools were well supported due to the large numbers of Chinese and the strong clan system the immigrants brought from mainland China. These clans, with the financial help of wealthy Chinese merchants, organized Chinese education. From 1900 until the Second World War, education was characterized by confusion. There were differences in financial support, curriculum, teacher qualification and teaching methods in an assortment consisting of government Malaysian schools, Christian missionary schools, community and estate-run vernacular schools and English schools for the elite.

By far the most rapidly expanding segment was the Chinese vernacular education which was oriented to mainland China. Education and politics were inseparable and raised the consciousness of the Chinese students and teachers and focused it outside of the Straits Settlements. After the 1911 Revolution in China, the Kuomintang, realizing the importance of the Chinese schools in Southeast Asia, sent over politicized teachers and texts. As early as 1920, students from the Chinese medium schools started to organize anti-Japanese programs. The British attempted to control the Chinese schools with little success. In 1941, the reasons for the Chinese students' anti-Japanese activities became

painfully apparent when the Japanese landed on the northeast coast of Malaya. They poured across the straits into Singapore on motorcycles, 'of all things', while the British were manning the cannons pointed out to sea where the Japanese were 'supposed' to invade, a very unsporting tactic!

After the war, as the British struggled to regain control, maintain order, feed the people, and contain the communist movement, it was clear that an organized educational system was needed to develop the national unity required for self governance and independence. In 1946, the educational policy for the more ethnically homogeneous Malaya established free primary education in the mother tongue with English as a subject. The more complex racial mix in Singapore required the Ten Year Programme initiated in 1947. Two prominent educators in Singapore differed on the solution to the diversity in language. Dr. Ho Sen Onn claimed that the only way to achieve national unity was with English education; the Reverend D.D. Chelliah, while recognizing the value of English as the *lingua franca*, stressed the importance of equal treatment for all groups with vernacular education. In the next 30 years, many attempts at educational policy were gored on the horns of this dilemma,-how to unify while maintaining the diversity of four cultures.

The Ten Year Programme was the first attempt at clearly defining educational policy. It decreed that free primary education, available to all races through the medium of one or the other of several languages, that is, Chinese, Tamil, Malay or English, should

aim at extending the capacity for self-government. Parent were free to choose the medium for their children, but entry to English-medium schools was restricted to those whose mother tongue was English. This was not popular with those parents who believed that their childrens' futures would be enhanced with an English education. It was viewed by the *Babas* as a restriction against inter-racial mingling of their children.

The brightest vernacular-medium students, after the third year of school, could receive free training in an intensive course in the English-medium school. Thus began the tradition of meritocracy which is still basic to the Singapore system. The importance this placed on the English-medium school negated the government statement that vernacular education was important for the territory. The pre-war policy stressing vernacular education, in order to keep the colonial peoples divided, had changed to covert encouragement of the English-medium schools. Although the policy gave verbal support to the vernacular schools, lower fees were charged for the English schools. The government was concerned with luring support away from the politicized Chinese schools before the time came to turn over the reins of government. Whether this politization of the Chinese Schools could have been prevented by more positive government action to address the needs of the Chinese education earlier is unclear. The clan structure of the mainland Chinese made it difficult for the government to penetrate the Chinese community, and the charisma

of the Kuomintang movement was strong throughout Southeast Asia.

The Chinese community was concerned in 1951 with the Report of the Committee on Malay Education which supported Malaysian and English education in Malaya. The Chinese were more determined than ever to preserve their schools in Singapore when merger with Malaysia came about after independence. In May, 1950 the Registration of Schools Bill, passed by the Legislative Council in Singapore, had heightened the controversy. Registration could be denied by this Ordinance if the school facilities were not adequate, the teachers not trained, or the school was used for political propaganda deemed detrimental to the students. A White Paper published in 1953 offered increased aid to schools which would become bilingual. To be eligible for increased aid, one- third of the time in Primary School had to be offered in English, in the Junior Middle, one-half and in the Senior Middle, two-thirds. Although the Chinese Schools were badly in need of increased aid, not all of them opted for the plan.

The Malaysian schools, which were not breeding ground for subversive activities, had received government support, but they were not satisfied with the increased emphasis on English. Thus, by 1955, nine years after its introduction, the Ten Year Plan had not produced a situation that would foster self-government and time was running out. It was left to Lee Kuan Yew and his Peoples Action Party to untangle this Gordian Knot, and there was much bloodshed in the process.

The more the English shunned the Chinese and emphasized Malay and English education, the more the Chinese drew together with their historically inherited cultural pattern to identify with the motherland. They developed self-contained communities operating independently of the government. These clans or *hui* were financed by the wealthier Chinese merchants and operated as welfare "states" that took care of their own poor and elderly and educated the young. From earliest days, the Chinese had banded together in clans to protect one another from the tyranny of emperors.

In the 17th century, this instinct for the connection, the *guanxi*, extended the *hui* to secret blood brotherhoods, the *triad*, to fight the Manchus. The immigrants formed branches of the triad in Singapore, where they evolved into rival warring societies. After World War II the Communist Party became the triad of triads and succeeded to some extent in uniting the triads in a common cause. For the Chinese there was nothing more important for their children than a Confucian education, and the *hui* opened 'schools' everywhere. The Chinese communists saw these schools in Singapore and Malaya as breeding grounds for communism in Southeast Asia, and added Mao Zedong's writings to the curriculum. In the Chinese schools young people were indoctrinated by teachers and textbooks and recruited into the party by classmates in extracurricular activities like the debating societies, the choir or the literary clubs. The student militant groups joined with the

unions in labour unrest as the economic situation deteriorated and more violence erupted in the schools.

In 1955, the Minister of Education in the coalition labour government under the British, Chew Swee Kee, faced with more violence in the Chinese schools and with independence just around the corner, appointed an All-Party Committee to study Chinese-medium education. It was recognized that this committee's deliberations were more crucial to the future of Singapore than were those of the Constitutional Committee. It was equally important that one commitee member was Lee Kuan Yew whose PAP party was the most vocal supporter of Chinese education, and who in 1959 would become Prime Minister of an independent Singapore able to continue to implement the proposal. The White Paper resulting from this committee was a landmark document which was central to the PAP'S political platform in the '59 election, and still today, it forms the basis for the National Education System. Although the report emphasized the importance of the ideals and values of Chinese education and culture to the formation of the new nation, it also stressed the importance of tolerance and acceptance of the contributions of the other races. The report reminded the Chinese majority that a common outlook with the Malaysians and Indians was essential in order to forge a national identity.

The Chinese schools, and all other vernacular schools, were given full financial support, if they came within the system. Tri-lingualism was recommended for primary schools and bilingualism for secondary schools. By 1958 the government was providing free

primary education, a Teacher Training College was established and syllabus and textbook committees were at work. Although many in the Chinese community agreed in principle with the report and accepted full financial aid, the government was not strong enough to control the Chinese schools until the late 1960s.

However in 1954, the students had complete control of the Chinese High School and held open indoctrination sessions. At Chung Cheng High School, the students "held a public trial of their dean of discipline and obliged the principal to sack him from the post" (Bloodworth, 1986, p.143). When the government arrested communist political leaders, the Chung Cheng students commandered the school and staged a sit-in for several days keeping worried parents at bay. Commandering the schools was a relatively mild form of protest, it was the violent street clashes that led to student deaths.

By 1959, when Lee Kuan Yew became the Prime Minister of an independent Singapore, the All-Party Committee's educational reform had still not been successful. The Chinese Community was concerned about becoming a racial minority in the proposed merger of Singapore and Malaya. The short-lived merger, which occurred in 1961, precipitated more violence in both countries, and was ended by Malaysia in 1965. Although Lee had said that Singapore could never 'go it alone', he now had to tell the people that they had no other choice.

Education became of primary importance as the people were the major resource of the young country. Although the government

continued to stress the vernacular schools, the issue of language had resolved itself otherwise. The parents noticed that the growing economy, largely in tourism, trade and banking, created many job opportunities for those fluent in English. Pragmatic parents enrolled their children accordingly, and by 1979, 91% of the students entering primary school registered in English schools. This created other problems, such as the need to recruit more English teachers and to pay special attention to bilingualism for it was essential that Singaporeans did not lose their cultural roots. Drop-out and failure rates were high thus creating much education wastage.

Consequently in 1978, the Prime Minister asked Dr. Goh Keng Swee, the Deputy Prime Minister, to study the problems in the Ministry of Education. Dr. Goh noted that education in Singapore had resulted in the "unnatural" situation in which 85% of the children were taught in a language that they did not speak at home. He observed that a single system which required all students to cover the same syllabus in the same time did not take into account the differences in the capacity of the children. The committee's New Educational System (NES) determined that children would concentrate during the first three years on gaining proficiency in the first language, English, and the second language of their choice, along with arithmetic. The children would be streamed into 3 different routes at the end of Primary Three on the basis of a common exam. The top group was to be accelerated while the other two streams were allowed flexibility in both time and degree of

difficulty in the program. The NES also provided more opportunities in vocational and commercial programs for students who could not succeed in academic studies. The Ministry worked on improving methodology in second language training and curiculum and textbook development.

There were immediate parental concerns about the early streaming of children although theoretically, provision had been made for 'late bloomers' to move horizontally to a more difficult stream. The Government made revisions to allow for appeal of the Primary Three test, and parents could override the decision. Prior to the impact of the NES, 60% of the students who wrote the Cambridge Primary School Leaving Certificate (PSLE) failed in one or both languages. The results of the PSLE in 1984 showed that 86% passed English and 98% passed the second language. By 1985, 90% passed English and 98.7% passed the second language. The Singapore results were as good as those of English speaking students in Great Britain.

Another result of Dr. Goh Keng Swee's investigation into the education system was the identification of the need to make vocational training attractive to school leavers, and the system of vocational training was restructured to provide various pathways to vocational certification for students within the system. As noted in Chapter I, the Vocational Industrial Training Board looked to upgrading the workers already employed and entered the field of adult basic education with the BEST program in 1983 and the WISE program in 1987.

Along with the primary role of teaching, the teacher has other roles, e.g., administrative, custodial, curriculum development and selection. In Singapore, the education system was inextricably involved in nation building and the society expected schooling to bring about success in the way of socio-economic gains for their children. Due to Singapore's enviable economic situation as one of the newly industrialized countries of Southeast Asia, these expectations have usually been met. Therefore, the selection role of the teacher was, and continues to be, predominant.

> ...teachers' educational tasks are often narrowly defined in terms of helping pupils pass examinations, by teaching strictly to the syllabus. The universality of this phenomenon is well-documented [by Dore in the *Diploma Disease*]. It occurs because parents (and pupils) perceive schools primarily as instruments of upward social and economic mobility. They judge teachers successful, and teachers tend to judge themselves successful, insofar as their pupils gain good qualifications which give them opportunities to compete for higher education.... (Dove,1986, p.46)

The Singapore teachers' perceptions of their role, as being narrowly defined in terms of helping students pass examinations, influences their acceptance of a different role in adult education.

Training of Adult Educators

The last 25 years have produced an unprecedented world-wide growth of adult education in the broad sense of life-long learning. Prosser (1967) identifies four types of adult education: formal (academic certification), foundation (literacy and life skills), liberal (self-fulfilment) and technical (in-service skill training). These changing demands of adult education indicate that largely self-taught staffing is not sufficient, yet in only a few countries has the education of adults evolved to the point where it is directed by professionals trained in the methodology of adult education, andragogy. Documented and researched training of adult educators, both professional and volunteer, is crucial to further development in the field.

The following statement would seem to be self evident. The training of adult educators, supported by related research, at both the professional and volunteer level, is of great importance to the development of effective adult education. Yet a search of the literature produces little evidence of concrete research regarding the effectiveness of such training programs. In some countries, adult education is scattered among various agencies without central planning or follow-up. However, the solution does not reside only in central leadership; other factors mitigate against systematic training of adult educators. Some countries with centralized leadership in adult education show a similar lack of research on, and progress toward, effective teacher training programs.

The training of adult educators has to be viewed in the context of the history of adult education and the role it is expected to fulfill.

> Successful and effective training of adult educators at all levels (in East Germany) must be based on a body of knowledge assembled through empirical research as well as through conceptualization and theory building. The schoolish orientation of much of the research and the excessive application of school-based pedagogy to adult education stands in the way of empirical research in adult psychology and application of the findings to adult education techniques. (Kulich, 1977, p.41)

In Britain, a combination of on-the-job training and academic courses actually leads to certification at a professional level. The literature, in fact, indicates a strong sentiment in Britain that adult educators can best be trained with a combination of course work and an internship to discover strengths and weaknesses.

Proponents of certification for adult educators claim that teachers and trainers in adult education work with a more diverse group of students, receive less supervision, and have fewer resources at their disposal than do their counterparts involved in the education of children. They need to know more about instructional design, materials development, instructional strategies and curriculum planning. Information and skills related to technology are becoming increasingly necessary for adult educators in the classroom, library or distant education environment.

> The truth is that new learning aids are used only by those who are trained and *conditioned* to use them. The impact of educational technology will remain slight even in highly industrialized countries unless adult educators and administrators are specially trained to take advantage of them and unless there is general curriculum reform. Proper use of such materials is needed at the micro level (to increase

an individual student's options) and at the macro level (to increase the number of people being served). (Kreitlow, 1981, p.78)

Those on the other side of the controversy maintain that certification at this time is impossible.

> Unless a core of knowledge and skills unique to adult education can be identified, unless a level of competence necessary for certification can be agreed on, unless a process and an entity to review and evaluate individuals can be designed, and, above all, unless it can be shown that there is a correlation between certification and teacher effectiveness, certification-whether mandatory or voluntary-will continue to be both unfeasible and unnecessary. (p.94)

That information is not available, because there is a lack of empirical research on teacher training effectiveness. The summative evaluations of teacher training programs offer very little hard evidence on effectiveness as related to ultimate student performance. Frequently, the follow-up surveys yield only subjective feelings and happiness factors.

> Not enough is known about the detailed working of training courses, the views of providers, the background, aims and methods of trainers, the expectations and experiences of trainees and the impact of training upon them, or their students and the adult education service as a whole." (Graham, 1982, p.v)

In most instances, the best intentions go astray for lack of time or funding. In a study of teacher training in Nottingham, England, the original intent was:

> to include some general evaluation of the benefits of training on teaching behavior and also to attempt some measurement of the efficiency and effectiveness of training through Cost

> Benefit Analysis but, it became apparent that these operations were beyond the resources of the project. (p.v)

Once again the evaluation merely surveyed the attitudes and opinions of all concerned.

A solid formative evaluation is generally missing also. There is not a clear idea of what is expected as an outcome of the teacher training. What makes a master adult educator? What are the main subject areas for study? The current performance by typical teachers specifies 'what is' and the comparable description of performance by outstanding mentors specifies what 'ought to be'. "The gap between 'what is' and 'what ought to be' constitutes the needs to be met by inservice training" (Knox, 1971, p.8).

Teacher training often does not cater enough to the importance of subject speciality and effective teaching techniques.

> "The basic ability of the outstanding teacher is the ability to weld together: knowledge of subject matter, effective teaching techniques, understanding of the learner's nature, empathy and interpersonal effectiveness." (p.9)

Although the last two items form the greatest variance between pedagogy and andragogy, the first two items are equally important and should not be neglected in a comprehensive teacher training program.

Adult educators are in a far more insular position than are teachers in the elementary and secondary system; there is very little opportunity for cross-fertilization. Experiences in England indicate that it is possible to have centralized coordination which permits a degree of local autonomy. Then central planners can offer training programs which provide:

1. formative evaluation of ways to determine the effectiveness of programs;
2. a system to determine 'the gap between what is and what ought to be';
3. an internship for novice adult educators;
4. ongoing in-service training for practitioners;
5. an incentive system to encourage participation in the training, and
6. a summative evaluation and follow-up.

Teachers will relapse into isolation after training in the absense of follow-up and support in teaching centres. Adult education practitioners themselves must be life-long learners, if they are going to coordinate and provide life-long learning for others.

Assumptions of BEST/WISE Pre-service Training

The curriculum materials written for the BEST program were largely based on a functional literacy approach that was activity oriented and drew upon adult experiences. The higher level WISE material was more content centered, but still student/activity-centered in approach. The teacher training sessions. therefore, were designed to encourage the BEST/WISE teachers to look at an andragogical approach.

It is generally stated that there is an inter-disciplinary body of knowledge, andragogy, which is significantly different from pedagogy. The history and theory of adult education, how adults learn, effective methods for teaching adults, strategies which

facilitate learning, effects of aging on learning and motivational factors are a few andragogical topics.

> There is now convincing evidence that what motivates adults to study and the processes by which they learn are sufficiently different from the motivation and learning of children to justify special training for those who will be concerned, whether as teachers or as organizers, with the education of adults. (Campbell, 1977, p.106)

Although there are such 'philosophic' statements about the importance of training adult educators, such training receives, in actual fact, little emphasis. Even in countries with highly organized adult education activities, training has a low priority. The BEST/WISE Teacher Training was based on the assumption that there is a body of knowledge, andragogy, which is sufficiently different than pedagogy; that will improve the effectiveness of teachers involved in teaching adult students at the basic literacy level. The theory and methodology of andragogy emphasize a student-centered approach as opposed to a content/teacher-centered authoritarian approach. It was further assumed that teachers of adult basic education courses can be trained in the basic concepts of andragogy in a short intensive course. The effectiveness of this training will be influenced by:

1. whether or not the trainees had previous teacher education;
2. the intensity of their commitment to the traditional authoritarian teacher role;
3. the opportunity to try new approaches in the existing classroom environment;

4. their experience level in teaching BEST/WISE adult classes, and
5. the success or failure of the new approaches when attempted.

This study takes the view that these assumptions must be further investigated in the Singapore setting before in-service teacher training is attempted. The literature provides cogent arguments against some of the assumptions about adult learners as reported by a number of prominent adult educators.

> As many adult tutors would recognize, the experience of school has left many adult students with both an expectation of and a 'felt need' for dependency and tutor direction. Many thus reject an 'adult' role in a learning situation (although they may experience the need to be seen as adult by others as a conflicting pressure). The view of the adult learner as self-directing, then, is often more a pious hope than a description of actuality- a goal to be achieved by the learner rather than a precondition of his or her learning. (Hartree, 1984, p.206)

Other research findings indicate that the appropriate andragogical approach and related teaching style is determined by the goal of the learner. Studies indicate that General Educational Development (GED) students learned more in a teacher-centered environment. GED students are task oriented to passing the standardized GED exam.

> As a result, correctly meeting their needs may involve creating a structured learning environment where objectives of passing the standardized GED test are clearly delineated. A different approach appears to be more appropriate in the basic level and ESL settings. ... The skills acquired in this

setting are not merely vehicles to certification, but are also related to the person's self concept. (Conti, 1985, p.227)

Now that the BEST and WISE teachers have acquired practical experience with adult education, it is important to obtain their perceptions of the most appropriate methods in the Singapore setting. One instrument used in this project to obtain their perceptions is discussed in the next section.

PRINCIPLES OF ADULT LEARNING SCALE

A literature search on Adult Education Teacher Training Effectiveness indicated that very little quantitative research on teacher effectiveness, teacher training effectiveness or teacher training models for basic adult education is available.

> Although a significant portion of adult education literature endorses the collaborative teaching-learning mode as an appropriate method for assisting adults in the learning process, there are few research studies evaluating the effectiveness of the collaborative mode. Such empirical studies have been hindered by the lack of an adequate instrument to measure the degree of practitioner support of the collaborative mode. Therefore, although adult education is in the process of developing its own distinct body of theory and knowledge, the degree of its acceptance by practitioners and its value, validity, and reliability have not been tested. (Conti, 1979, pp.3-4)

To redress this problem Conti developed and validated a 44 item instrument, the Principles of Adult Learning Scale (PALS) which was used in this study, with the consent of Dr. Conti. According to Conti, PALS is,-

> capable of measuring the degree to which adult education practitioners accept and adhere to the adult education

> learning principles that are congruent with the collaborative teaching-learning mode. (Conti, 1982, p.144)

Of the 44 items on PALS, 24 are positively oriented to the collaborative teaching-learning mode and 20 are negative. The participant is asked to respond as to the frequency of use of the action described in each item on a Likert scale ranging from zero to five. Responses congruent to the learner-centered collaborative mode are assigned a high value. The total score on PALS gives an indication of whether a teacher favors a teacher-centered or a student-centered style in an adult education classroom setting. High scores indicate an approach whereby the teacher shares authority for curriculum decisions and classroom management with the learners, and low scores indicate that authority rests solely with the teacher. A score near the established North American mean of 146 indicates a teaching style that uses a combination of behaviors.

> Thus, the PALS score indicates the teacher's overall teaching style, the strength of the support for this style, and the degree to which the teacher accepts the general ideas in the mainstream adult education literature (Conti, 1989, p.8.)

The research design of PALS controlled for construct, content, and criterion-related validity, reliability, social desirability and congruence of interpretation of the instrument's items. Conti established construct validity of the PALS items with two juries of prominent adult educators, who were dispersed geographically throughout the United States. Criterion-related validity was established by comparing the scores of those who scored more than two standard deviations above or below the mean on PALS with their scores on the Flanders Interaction Analysis Categories (FIAC).

FIAC is a validated system used to observe initiating and responsive actions in the classroom; these actions are highly congruent with the collaborative mode characteristics. Conti used the FIAC scores to assess the degree to which acceptance of a particular mode and actually practicing it are congruent. Validity was established by the test-retest method.

The overall PALS score can be broken down into seven factors which, according to Conti (1989), identify specific elements that make up the teachers' general style.

Factor 1 is Learner-Centered Activities. A high score indicates an emphasis on informal evaluation techniques, on encouraging students to initiate action and on helping students take more responsibilities for their learning.

Factor 2 is Personalizing Instruction. A high score indicates a preference for adjusting the learning situation to fit the needs of each student.

Factor 3 is Relating to Experience. A high score indicates a recognition of the importance of the adult student's prior experience to the learning situation.

Factor 4 is Assessing Student Needs. A high score indicates the desire to establish each student's wants and needs.

Factor 5 is Climate Building. A high score indicates an atempt to build a physical and psychological climate that is comfortable for the learners.

Factor 6 is Participation in the Learning Process. A high score indicates support for permitting the student to share in

decisions regarding the problems to be solved and what will be covered in class.

Factor 7 is Flexibility for Personal Development. A high score indicates a view of the teacher as more of a facilitator than a provider of knowledge.

The PALS instrument has been used in numerous research projects to determine teacher practices in adult classes and to explore the relationship between teaching style and student outcomes. In several of the studies, statistical evidence indicated that teaching style influenced student achievement. However these gains were not always consistent with adult education theory i.e., the students of learner-centered teachers, with a collaborative style, did not always have the highest achievement. The effects of teaching style differed with the type of program. The teacher-centered approach was more effective in classes which prepared students to take the General Educational Development (GED) test, while the learner-centered style was most effective in English-as-a-Second-Language (ESL) and Adult Basic Education (ABE) classes (Conti, 1989).

In another study, Conti (1989) determined that a 'very high' orientation to either a learner-centered or teacher-centered approach produced higher student achievement levels than an 'extremely high' orientation to either approach and higher student achievement levels than a moderate approach. These observations would indicate that students do better with consistency but not rigidity. The extreme teacher-oriented approach would ignore

student needs and input; the extreme learner-centered approach would ignore the student need for structure; and the moderate approach would ignore the student need for consistancy.

These PALS studies indicate that certain teaching styles are more appropriate for certain situations, and this is therefore contrary to the andragogical thought that the adult is a self-directed learner who functions best in a collaborative venture. Pratt (1988) suggests that not all adults are self-directed, nor do all learning situations permit self-directedness.

> ...andragogical practice should acknowledge and accept of its learners both self-directedness and its obverse, dependency; both can be viewed as phenomenological expressions of a specific, context-bound, and limited situation. (p.161)

Pratt identifies three interdependent variables which in part define the learning situation and are in part defined by it.

The situational variables are those conditions which are not considered as psychological or personal attributes of the learner or the teacher. These include such things as the demands of sponsoring agencies, time, cost and external examinations. These create a pre-determined structure over which neither the self-directed learner nor the learner-centered teacher have control. The learner variables include the psychological and personal attributes which determine the learners competence, commitment and confidence in a given situation. A normally self-directed learner may relinquish control in any given situation where competence, commitment and confidence drop below an acceptable level. The teacher variables include personal philosophy, experience, training

and confidence. Many teachers were taught in a situation where the teacher was in the dominant position and think it inappropriate and ineffectual to change that situation.

Thus, it is important to realize that there is not one simple answer to the best teaching style; the nature of the relationships that develop out of all three variables must be considered.

> While andragogical practice has been seen as particularly appropriate for the teaching of adults, recent debate has abandoned an andragogy-pedagogy dichotomy which claims that the teaching of adults is significantly different from the teaching of youth. Such distinctions exaggerate the differences between adult and youth education, minimize the differences between adults as learners, misrepresent pedagogy and, unfortunately, present andragogy as a prescription for teaching that disregards siutational, learner, and teacher variables. (p.164)

The recognized, validated and reliable Principles of Adult Learning Scale (PALS) was used as the survey instrument for this research along with questions specific to the BEST/WISE curricula as related to the A.V.C. teacher training sessions and personal information. This combination permited an examination of the relationship of the professed teaching-learning mode to such factors as subject matter taught, previous teaching experience, age and sex and also provided an empirical basis for future staff training in the Singapore setting.

With a view toward future staff training, the next section investigates an approach to encourage teacher input into research and professional development.

PARTICIPATORY ACTION RESEARCH

> Evaluations are all too often vindicatory and propagandistic, aimed at collecting evidence to show that projects and programmes should be continued and replicated, and that those responsible have been doing a good job, instead of detecting what needs to be done differently in the future, or not done at all. (Hurst, 1980, p.8)

The previous quote is unfortunately all too true of many imports of educational projects from one country or province to another. This is not to negate the importance of cross-fertilization or educational transfer in the development of education. Whether it comes from the university researcher to the classroom teacher or from one culture to another, technical assistance "presupposes that we know how to do it, and you don't'"(p.8). There is a danger here of educational imperialism. The true supposition should read, we have an idea that works in some situations; it might work for you with certain adjustments.

It is often forgotten that the key to successful change in any educational program is the front-line classroom teacher and ultimately the students. The teacher's ability to effect change depends on morale, self-esteem, and commitment to the program; these characteristics, in turn, can only be cultivated by involving teachers in the process of educational planning as contributing partners. When technological changes are not effected as quickly as possible or not at all, this is often attributed to non-rational causes or resistance to change. This exemplifies the theory that all systems are resistant to change, and teachers are generally

considered conservative reactionaries. There is the alternate theory, not too often considered, that teachers are rational, logical agents who can consider technological innovations with a view to their contributions to their desired ends and to those of the students. More often the first theory is the accepted one, and administrators, academics and researchers, when discussing problems with innovations, talk of 'systems' and 'communication' rather than human beings who are acting rationally.

> It is futile to expect teachers to collaborate wholeheartedly in projects which promote reforms or innovations on which the rate of return or efficiency ratio of yield to input, or benefit to cost, is apparently no better or worse than existing practice. Yet many educational innovations in effect require teachers to work a great deal harder for little extra visible payoff, although this is not realised by officials and academics whose knowledge of classroom realities is limited. (p.9)

Teacher/student morale and commitment to innovations is even more problematic in a part-time worker's education setting such as that in which BEST and WISE was used. Usually teachers and students have already worked a full day and energy is at a premium; a hot climate adds to energy drain. The teachers are isolated from contact with colleagues and can easily lose confidence in themselves.

Participatory Action Research is a process in which the 'community' participates in the analysis of its own reality in order to identify problems. It involves collective investigation, collective analysis, collective action. In an educational setting, it can strengthen the awareness of the teachers of their own abilities and

resources and, therefore, gather support for innovations, or for the status quo, if that is their conclusion.

In terms of methodology and design, most educational research falls into the category of positivist empirical research, such as this research project, where a hypothesis is investigated with some data gathering instrument and the data is analyzed statistically. The objectivity of the data determines the degree of analytical rigor. Another type of research, ethno-methodology, does not start with a hypothesis or preconceived idea. Proponents of this approach are in opposition to the positivists. They claim that objectivity is impossible with predetermined questions or hypotheses, and therefore emphasize open-ended discussions and explorations. Participatory Action Research falls in the ethno-methodology category. Those who believe that true research must start from the guidance of a hypothesis and must be replicable cannot accept Participatory Action as a true research method. The roots of this controversy are deeply embedded in the efforts of the social sciences to be equated with the physical sciences. Unfortunately, there seems slight possibility of a return to the days when philosophy, mathematics and science were together and accorded equal status. The merit of the concept should not be lost, however, in the conflict over what is true research. Participatory Action Research can be relabeled as Participatory Action or Collaborative Action. The important thing is to institute a teaching/research praxis that follows a cyclic pattern of planning, action, observation and reflection.

This ongoing debate between the social science and the 'true' sciences should not force educators into an 'either or' situation but rather into a combination of the best of both approaches. In the instance of this project, an empirical approach, within the limits of subjective data, was adopted to investigate the effectiveness of the BEST/WISE teacher training. The BEST/WISE teacher responses on Part B of the questionnaire were compared with the Principles of Adult Learning Scale. Along with demographic information, Part A of the questionnaire asks specific questions about the BEST/WISE curricula. Some of these questions are open ended and the responses were compiled. This compilation could provide a starting point for Participatory Action Research.

> Action research is simply a form of self-reflexive enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understandings of those practices, and the situations in which the practices are carried out. (Carr & Kemis, 1986, p.162)

This sort of activity requires collaboration, and effective collaboration will not just happen; it requires some structure and planning. Part-time teachers in a program like BEST/WISE need to see a possible 'pay-off' within a reasonable time frame. Although some of them are retired teachers or housewives, most of them have other full-time jobs. Even the most highly motivated and conscientious part-time teacher would have limited time to spend on a Participatory Action Research activity. However, the enthusiasm of many of these dedicated teachers, evidenced during the teacher training sessions attended during their holiday time in

some instances, indicates that they would participate, the time problem notwithstanding. There is a precedent in Singapore for participatory work related efforts, where workers in industry have collaborated in Quality Control Circles to improve production or the work place environment, and these activities receive national recognition. Participatory Action Research would offer a type of educational quality control whose expected outcome would be "not so much empirical explanation as insightful understanding". (Van Manen, 1984, p. ii). Collabortative action can bridge the gap between educational research and teaching, between knowing and doing, and between theory and practice.

> At the point of encounter there are neither utter ignoramuses nor perfect sages; there are only people who are attempting, together, to learn more than they now know. (Freire, 1968, p.79)

This research project attempted to combine an empirical approach, i.e. a written questionnaire, with a more open-ended approach of discussions and explorations, i.e., classroom observations and teacher interviews. The next chapter presents the methodology and design of this project.

CHAPTER III
RESEARCH DESIGN AND METHODOLOGY

DATA GATHERING PROCESS

This chapter describes the research methodology of the project. The data were gathered in two phases:

Phase 1. The questionnaire was mailed out in August 1989 to all BEST/WISE trained teachers. A draft copy of the questionnaire had been sent to the V.I.T.B. in May, 1989 and the suggested modifications were incorporated in the document. (The questionnaire and covering letter are included as Appendix A). The questionnaire was divided into Part A, background information and questions particular to the BEST and WISE Pre-service Training Sessions; Part B, future professional development needs, and Part C, Conti's Principles of Adult Learning Scale (PALS). The results of the 331 returned questionnaires were tabulated and a preliminary report was sent to the V.I.T.B. on February 28 1990.

Phase 2. The author conducted 22 classroom observations and teacher interviews in Singapore during the period from April 9 to April 25 1990. (The Classroom Observation for Mathematics and English and Teacher Interview Forms developed by the author are included as

Appendices B and C). A preliminary report on the results of these classroom observations was sent to the V.I.T.B. on May 28, 1990.

RESEARCH QUESTIONS-QUESTIONNAIRE

The teachers who attended the teacher training sessions were enthusiastic about the sessions both verbally and in the written evaluations. They gave high marks to the AVC trainers for 'practising what you preach' by involving them as learners. However they also expressed some reservations regarding the acceptance of a more collaborative style by their BEST/WISE students. It was often mentioned that the Singapore educational system is teacher-centered and highly exam-oriented, and that would be the approach expected by the workers. Therefore, in spite of the teachers' enthusiasm for the training sessions, the A.V.C. presenters felt that the teachers might not be able to move far into the collaborative mode in all levels of the BEST/WISE courses. The degree to which this is true should influence future teacher training.

The purpose of the study was to determine the BEST/WISE teachers' acceptance, or rejection, of the philosophy and methodology offered by the A.V.C. trainers in the pre-service training, now that the teachers have adult teaching experience. It was <u>not</u> intended as a cross-cultural comparison study. The PALS North American norms are <u>not</u> set up as a standard. As mentioned

in Chaper II, even in North America, certain teaching styles are more appropriate for certain situations. Several PALS studies indicated that gains in student achievement were not always consistent with adult education theory, i.e., the students of learner-centered teachers did not always have the highest achievement. One study indicated that teachers with a moderate approach, i.e., scores close to the mean value, did not produce higher student achievement levels than did the teachers with a very high orientation to either a student-centered or a teacher-centered approach. This would indicate that the moderate approach ignores the students' need for consistency.

The trainees repeatedly mentioned to the A.V.C. presenters that the Singapore educational system was teacher/content-centered and highly exam-oriented, and that, for these reasons, it would be difficult to attempt some of the educational technology presented in the pre-service training. The author's historical research, Chapter II, supported these opinions with respect to the historical roots of the Singapore educational system. The PALS instrument was used as only one part of this study to determine the BEST/WISE, teachers' acceptance, or rejection, of the philosophy and methodology offered in the pre-service training. The questions in Parts A and B of the questionnaire, particular to the methods suggested in the pre-service training and the identified future professional development needs, also provided a check on the

reliability and validity of the PALS instrument in a different cultural setting.

The first research question compared the BEST/WISE teachers to the PALS North American mean scores.

Research Hypothesis #1 BEST/WISE teachers adhere to the more traditional teacher/content-centered teaching style rather than the collaborative style as measured by PALS.

Null and Alternate Hypotheses

H_0: The difference between the mean scores on the total and the 7 factors of the teaching mode, as measured by PALS, for BEST/WISE teachers subtracted from the established North American mean scores will be zero.

H_a: The difference between the mean scores on the total and the 7 factors of the teaching mode, as measured by PALS, for BEST/WISE teachers subtracted from the established North American mean scores will be greater than zero.

The author anticipated that differences might be identified in the acceptance of the collaborative teaching mode for the following subgroups: age, sex, previous educational qualification, experience (pedagogy and andragogy), location of class, level of classes taught and number of AVC teacher training courses attended. These subgroups were analyzed separately. Research hypothesis #2 is given as an example of these subgroup hypotheses as they are all similar in wording.

Research Hyposthesis #2. The mean scores on the total and the 7 factors of the teaching modes, as measured by PALS, will differ by the previous educational level of the BEST/WISE teachers.

Null and Alternate Hypotheses

H_o: The mean scores on the total and the 7 factors of the teaching mode, as measured by PALS, will not differ for the previous educational qualifications of the BEST/WISE teachers.

H_a: The mean scores on the total and the 7 factors of the teaching mode, as measured by PALS, by previous educational qualifications will differ for at least one group of the BEST/WISE teachers

Respondents

The population of this research was limited to trained BEST/WISE teachers who had taught at least 1 BEST or WISE class. 'Trained' means that the person has taken at least one of the 3 possible teacher training courses offered by AVC personnel: Basic Training for potential BEST teachers; Advanced Training for potential BEST teachers, and Training for potential WISE teachers.

The written questionnaire was mailed out by the V.I.T.B. to 1124 "trained" teachers (WISE-280 & BEST-844). The number of questionnaires returned was 331. Based on a population of 1124, the rate of return was 30%. However the rate of return was probably higher, as some of the 1124 recipients had not taught a BEST or WISE course. The covering letter indicated that the questionnaire should only be completed by those trained teachers who had subsequently taught at least one BEST or WISE class. The package mailed out to the respondents included: the three part questionnaire; a separate answer sheet for machine scoring Part C; the covering letter, and a postage-paid envelope addressed to

V.I.T.B. The Board mailed the bulk parcel of returned instruments to the author for analysis.

Data Analysis

The statistical package SPSSX was used for data analysis. Frequency table percentages and means were used for comparisons of variables in Parts A and B. For Part C (PALS) analysis of variance was used to identify significant differences between the means in the following hypotheses with a significance level of α=.01:

> Research Hypothesis#1 -BEST/WISE teachers adhere to the more traditional teacher/content-centered teaching style rather than the collaborative style as measured by PALS.
>
> Research Hypostheses #2 -The mean scores on the total and the 7 factors of the teaching modes, as measured by PALS, will differ by *'some subgroup characteristic'* of the BEST/WISE teachers.

For this hypothesis the means of selected subgroups of the BEST/WISE teachers were compared with each other to determine if there were significant differences between groups.

RESEARCH QUESTIONS-
CLASSROOM OBSERVATIONS AND TEACHER INTERVIEWS

The interview is preferable to the written questionnaire in cross-cultural studies, because of one or more of the following:

> (a) people may not be sufficiently literate to answer a questionnaire, (b) the motivation to complete the questionnaire may be low, (c) many new phenomena may be observed and insights gained by talking to people in the field rather than by means of a structured questionnaire, (d) answering questions in an interview situation may be easier as the interviewer establishes a relationship with the respondent. (Pareek, 1980, p.145)

The follow-up classroom observations and interviews were essential to the project, since the return rate on the questionnaire was lower than 40%. Therefore, the opportunity to interview a randomly selected group of BEST/WISE teachers provided a check on the validity of the written questionnaire and the use of the PALS instrument in a different cultural setting. The objectives of the classroom observations and teacher interviews were:

1. to corroborate the written questionnaire regarding the difference between the BEST/WISE teacher's mean scores on PALS and the North American norms;
2. to corroborate the written questionnaire regarding the different results on PALS scores between certain sub-groups of teachers;
3. to corroborate the written questionnaire results regarding the techniques and methods used/not used by teachers and their apparent effectiveness and suitability when used;
4. to corroborate the written questionnaire relating to identified inservice needs of teachers;
5. to investigate availability of resources for teachers, and

6. to investigate participatory action research for future planning on teacher effectiveness.

Process of Classroom Observations and Teacher Interviews

Twenty-two classroom observations and teacher interviews were conducted. The observations were one and a half to two hours in duration and the interviews approximately one half hour. (In order to maintain a non-biased observation, the teacher interviews were conducted after the classroom observations.) The break-down of visitations included: 16 certified and 6 non-certified teachers; 18 English and 4 mathematics classes; 9 BEST classes and 13 WISE classes, and 8 Company Classes, 8 V.I.T.B. Schools and 6 National Trade Union Centres. (A more detailed breakdown of Modules is included as Appendix D.)

Items 1-20 on the classroom observation forms (Appendix B) were indicators of either student-centered or content-centered teacher presentations. These items concentrated on the opportunities provided for student talk/activity and the variety of methods employed as opposed to mostly teacher talk and use of only a lecture method. During the classroom observation, the author recorded observations on items 1-20 of the observation form. These comments were used to determine a score for Environment, Presentation and Content, (items 23 to 25) based on the following ranking per item: 3, Highly Student-centered, 2, Slightly Student-centered and1, Highly Content-centered. Items 23

to 25 were averaged to obtain a total score for each teacher. Comparisons were then drawn between the teachers' responses in the interview and the observations.

TIMELINES

The project was conducted within the following time frame:

Research Proposal sent to the V.I.T.B. (including draft of questionnaire and covering letter)	May 30, 1989
Revised Questionnaire sent to the V.I.T.B.	June 30, 1989
Questionnaire & letter mailed to teachers	August 1, 1989
Deadline for return to the V.I.T.B.	August 30, 1989
Mailed to Edmonton	Sept 30, 1989
Preliminary results sent to the V.I.T.B.	February 28, 1990
Classroom Observations and Teacher Interviews Conducted	April 9-25 1990
Preliminary results sent to the V.I.T.B.	May 28 1990

CHAPTER IV
DATA ANALYSIS RESULTS OF QUESTIONNAIRE

This chapter presents the data from the 331 returned questionnaires; means and modes are included for variables only where meaningful. As noted in Chapter III the questionnaire was divided into:

Part A - Demographic information and questions related to the Pre-service Training Sessions;

Part B - Future professional development needs and

Part C - The PALS Instrument.

The responses to Parts A and B, after recoding, yielded 86 variables. Although the maximum possible valid cases are 331, in many cases the valid cases are less, because certain questions were designated for only certain sub groups, eg: only Ministry of Education certified teachers were to respond to Question 3b and only mathematics teachers were to respond to Question 5. In Part C seven subscores and a total score are derived from the 44 question PALS instrument.

PART A-DEMOGRAPHIC INFORMATION

This section provides general information on the respondents, their educational training and BEST/ WISE experience.

Age and Gender

The gender breakdown of respondents is 54% males and 46% females. The respondents are relatively young with a mean age of 33.7 years. Thirty-two respondents did not give their age (Table 1).

TABLE 1

Age Groups

	FREQUENCY	PERCENT	CUM. PERCENT
20-29 years	80	26.8	26.8
30-39	104	34.8	61.5
40-49	72	24.1	85.6
50-59	43	14.4	100.0
TOTAL	299	100.0	

Educational Training and Experience

Non-certified teachers account for 58% of the respondents while 42% have Ministry of Education certification. Teachers must be certified to teach the secondary level WISE program, but certification is not required for the BEST teachers. Thus, the majority of teachers teaching in the BEST program have little pedagogical training. Of the certified teachers, 64% are currently teaching in the regular system, while the remaining 36% are either retired or inactive (Table 2).

TABLE 2

Ministry of Education Status of Certified Teachers

	FREQUENCY	PERCENT	CUM. PERCENT
Teaching	89	64.0	64.0
Not teaching	20	14.4	78.4
Retired	30	21.6	100.0
TOTAL	139*	100.0	

*Note-Tables 2-4 are based on questions that were answered only by certified teachers; this resulted in a smaller total number of applicable responses.

The majority of certified teachers (56%) are currently teaching or have taught at the secondary level in the regular school system; that is their experience is with students who have passed the Primary School Leaving Examinations (Table 3). Of the certified teachers, 69% have more than 10 years teaching experience (Table 4). Therefore, the majority of teachers in the WISE program have extensive experience with young students at the secondary level.

TABLE 3

Highest Level Taught of Certified Teachers

	FREQUENCY	PERCENT	CUM. PERCENT
Primary and Pre Primary	43	31.4	31.4
Secondary	77	56.2	87.6
Post-Secondary	17	12.4	100.0
TOTAL	137	100.0	

TABLE 4

Ministry of Education Experience of Certified Teachers

	FREQUENCY	PERCENT	CUM. PERCENT
1-10 years	42	31.1	31.1
11-20	31	23.0	54.1
21-30	42	31.1	85.2
31-40	20	14.8	100.0
TOTAL	135	100.0	

BEST/WISE Training and Experience

Tables 5 and 6 present the respondents' experience in teaching adults in the BEST and WISE programs. The BEST teachers naturally have more adult teaching experience, because the BEST

program has been operational since 1984, whereas the WISE program began in 1987. Both courses are offered twice each year, January to June, and July to December.

TABLE 5

Number of BEST Courses Taught

	FREQUENCY	PERCENT
None	127	38.4
1-10 courses	151	45.6
11-20	36	10.9
21 plus	17	5.1
TOTAL	331	100.0

TABLE 6

Number of WISE Courses Taught

	FREQUENCY	PERCENT
None	150	45.3
1 or 2 courses	98	29.6
3 plus	83	25.1
TOTAL	331	100.0

Table 7 identifies the numbers of teachers who have taught BEST only, WISE only, both or neither. This variable, 'Program Taught', was created from conditional statements using the data

from Tables 5 and 6, and is used later in the data anaysis to determine if there are statistically different responses from these sub-groups.

TABLE 7

Program Taught

	FREQUENCY	PERCENT
BEST & WISE	74	22.4
BEST	130	39.3
WISE	107	32.3
Neither	20	6.0
TOTAL	331	100.0

Comparisons between teachers with experience teaching the lower level modules, those with experience at the higher levels, and those with experience at all levels are given in Tables 8-11. The majority of teachers who have taught BEST English have experience at all levels. The BEST Mathematics teachers have had the least experience with the lower levels, as the enrollments are light in the lower modules. Most students are numerate and when their English improves they register in the higher mathematics modules. The WISE teachers' experience in both Mathematics and English is mostly at the lower levels because the program was only in the second year of operation at the time of the survey.

TABLE 8

BEST English Modules Taught

	FREQUENCY	PERCENT
None	121	36.6
Only levels 1 & 2	28	8.5
Only levels 3 & 4	18	5.4
All levels	164	49.5
TOTAL	331	100.0

TABLE 9

BEST Mathematics Modules Taught

	FREQUENCY	PERCENT
None	237	71.6
Only levels 1 & 2	21	6.3
Only levels 3 & 4	33	10.0
All levels	40	12.1
TOTAL	331	100.0

TABLE 10

WISE English Modules Taught

	FREQUENCY	PERCENT
None	178	53.8
Only levels 1 & 2	86	26.0
Only levels 3 & 4	14	4.2
All levels	53	16.0
TOTAL	331	100.0

TABLE 11

WISE Mathematics Modules Taught

	FREQUENCY	PERCENT
None	284	85.8
Only levels 1 & 2	29	8.8
Only levels 3 & 4	7	2.1
All levels	11	3.3
TOTAL	331	100.0

Table 12, created from conditional statements based on the data from Tables 8 to 11, identifies the numbers of teachers who have taught English only, Mathematics only, both, or neither. This variable, Subject Taught, is used later in the data analysis to determine if there are statistically different responses from these sub-groups.

TABLE 12

Subject Taught

	FREQUENCY	PERCENT
English only	194	58.6
Mathematics only	23	7.0
Both	104	31.4
Neither	10*	3.0
TOTAL	331	100.0

*Note-Although 20 people indicated that they had not taught either BEST or WISE (Table 7), only 10 people indicated that they had taught neither English or Mathematics (Table 12). This discrepancy occurred because respondents who left question 4a blank were coded as having neither BEST or WISE experience when they may have been unsure of the exact number of courses taught. Ten is probably a more realistic number of the respondents who have had no involvement teaching in either program. Only trained teachers who had actually taught at least one course should have received the questionnaire.

All of the respondents had attended at least one of the pre-service training sessions; 65 % of the respondents received the BEST Pre-service Training and 54% attended the WISE Pre-service

Training; thus 19% had attended both sessions. Also, an Advanced BEST Training was offered to 74 selected English teachers, and all 74 of these teachers responded to the questionnaire. The 100% response rate of the Advanced BEST Training group is not surprising as this group was originally selected on the basis of enthusiasm and experience.

Location of BEST/WISE Classes

BEST and WISE classes are held at National Trade Union Committee (NTUC) and Peoples Action Party (PAP) Centres. PAP is the political party which has governed Singapore for 30 years and the NTUC is the PAP affiliated labour union. The Company Centres are either public companies, eg. Port of Singapore Authorities or private companies, eg. Apple Computers Ltd. Other classes are offered at the VITB's Vocational Institutes. 179 respondents have taught at Company Centres, 144 at NTUC/PAP Centres, 81 at Vocational Institutes and 66 at other centres. The 'other' category includes correctional institutes and a school for the hearing impaired.

PART A-PRE-SERVICE TRAINING FOLLOW-UP

Mathematics Techniques/Teaching Aids

The respondents were asked for information about 4 mathematics techniques or teaching aids that were emphasized in the Pre-service Training. They were asked to indicate the

frequency of use of each item; if used, to indicate the effectiveness, and if not used, to select one or more reasons for non-use. If Seldom, Often, Almost Always or Always was selected for frequency of use, then the respondent was instructed to rank the effectiveness of the technique. If Almost Never or Never was selected for frequency of use, then the respondent was instructed to select one or more reasons for non-use. The extensive written comments to these questions are included in Appendix E. These include the comments regarding the reasons for not using a technique/teaching aid and the effectiveness when used.

Overhead Projector Transparencies

The responses, presented in Table 13, indicate that 43% used transparencies often or more frequently, 20% used them seldom and 37% used them almost never or never. Approximately 91% of the individuals who used transparencies judged them to be moderately or very effective. The most frequent reason for non-use was unavailability. The written comments indicate that unavailability of <u>good</u> transparancies is the problem, not unavailability of a projector. Most centres are equipped with overhead projectors but lack an adequate supply of good transparencies.

TABLE 13

Mathematics Transparencies

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	6	4.7	4.7
Almost always	15	11.8	16.5
Often	34	26.8	43.3
Seldom	25	19.7	63.0
Almost never	18	14.2	77.2
Never	29	22.8	100.0
TOTAL	127*	100.0	

Effectiveness When Used			
Not effective	7	8.3	8.3
Moderately effective	51	60.7	69.0
Very effective	26	31.0	100.0
TOTAL	84	100.0	

Reasons For Non-use	
Space	9
Time	16
Unsuitable content	13
Unsuitable for students	11
Not available	20

*Note-Tables 13 is based on questions that were answered only by mathematics teachers; this resulted in a smaller total number of applicable responses.

Models and Measurement Tools

The responses, presented in Table 14, indicate that 44% used models and measurement tools often or more frequently, 20% used them seldom and 36% used them almost never or never. Approximately 96% of the individuals who used models and measurement tools judged them to be moderately or very effective. The most frequent reason given for non-use is unavailability; of the 45 individuals who never or almost never used models, 37 or 82% did not have them available or accessible for use.

Alternate Problem Solving Techniques

The responses, presented in Table 15, indicate that 70% explained more than one problem solving technique to the students often or more frequently, 18% did this seldom and 13% almost never or never provided more than one example technique. Approximately 96% of the individuals who used more than one problem solving technique judged this technique to be moderately or very effective. One teacher commented that, "Due to differences in perception, students should be encouraged to see a problem from various angles." The most frequent reason given for non-use was the time constraint; there was usually not enough time to explain more than one approach. "Unsuitable for students" was the second most common response. In the written comments, several teachers presented the view that more than one approach confused some students.

TABLE 14

Models and Measurement Tools

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	4	3.2	3.2
Almost always	14	11.1	14.3
Often	38	30.2	44.4
Seldom	25	19.8	64.3
Almost never	19	15.1	79.4
Never	26	20.6	100.0
TOTAL	126*	100.0	

Effectiveness When Used			
Not effective	3	3.8	3.8
Moderately effective	33	42.3	46.2
Very effective	42	53.8	100.0
TOTAL	78	100.0	

Reasons For Non-use	
Space	3
Time	7
Unsuitable content	11
Unsuitable for students	3
Not available	37

*Note-Tables 14 is based on questions that were answered only by mathematics teachers; this resulted in a smaller total number of applicable responses.

TABLE 15

Alternate Problem Solving Techniques

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	5	4.0	4.0
Almost always	23	18.3	22.2
Often	60	47.6	69.8
Seldom	22	17.5	87.3
Almost never	12	9.5	96.8
Never	4	3.2	100.0
TOTAL	126*	100.0	

Effectiveness When Used			
Not effective	4	3.8	3.8
Moderately effective	59	56.2	60.0
Very effective	42	40.0	100.0
TOTAL	105	100.0	

Reasons For Non-use	
Space	1
Time	14
Unsuitable content	1
Unsuitable for students	9
Not available	3

*Note-Tables 15 is based on questions that were answered only by mathematics teachers; this resulted in a smaller total number of applicable responses.

Small Group Work

The responses, presented in Table 16, indicated that 51% used small group work often or more frequently, 22% seldom used small group work and 27% almost never or never had the students work in small groups. Approximately 88% of the individuals who used small group work judge this to be moderately or very effective. The most frequent reason given for non-use was the time constraint; there was usually not enough time to organize the students into small groups. The second most frequent reason given was that small groups were not suitable for many students who were shy and prefered to work alone.

TABLE 16

Small Group Work

Frequency of Use

	FREQUENCY	PERCENT	CUM. PERCENT
Always	7	5.5	5.5
Almost always	12	9.4	15.0
Often	46	36.2	51.2
Seldom	28	22.0	73.2
Almost never	12	9.4	82.7
Never	22	17.3	100.0
TOTAL	127*	100.0	

Effectiveness When Used

Not effective	11	12.1	12.1
Moderately effective	47	51.6	63.7
Very effective	33	36.3	100.0
TOTAL	91	100.0	

Reasons For Non-use

Space	4
Time	22
Unsuitable content	5
Unsuitable for students	19
Not available	2

*Note-Tables 16 is based on questions that were answered only by mathematics teachers; this resulted in a smaller total number of applicable responses.

ESL Techniques/Teaching Aids

Those respondents who taught English were asked for information about 4 ESL techniques or teaching aids that were recommended in the Pre-service Training. The respondents were asked to indicate the frequency of use of the item; if used, to indicate the effectiveness, and if not used, to select one or more reasons for non-use. If Seldom, Often, Almost Always or Always was selected for frequency of use, then the respondent was instructed to rank the effectiveness of the technique. If Almost Never or Never was selected for frequency of use, then the respondent was instructed to select one or more reasons for non-use.

The extensive written responses to these questions are included in Appendix E. These responses include the comments regarding the reasons for not using a technique/teaching aid and the effectiveness of the technique when it was used.

Phonics Exercises

The responses, presented in Table 17, indicate that 51% used phonics exercises often or more frequently, 19% seldom used phonics and 30% almost never or never used phonics exercises. The teachers' comments indicate some inconsistency with the term phonics exercises. Some respondents identified it with sounding out words when reading and others to help with pronounciation problems. A need for pronounciation help was strongly identified by many teachers in the classroom interviews.

Approximately 91% of the individuals who used phonics exercises judge them to be moderately or very effective. Time was selected as a reason for non-use 44 times. The second most frequent reason given was unsuitability for students. This again may refer to student shyness with oral communication.

Role Play

The responses, presented in Table 18, indicate that 54% used role play often or more frequently, 31% seldom used it and 15% almost never or never used role play. Approximately 84% of the individuals who used role play judge it to be moderately or very effective. Time and questionable suitability for students were selected as the reasons for non-use. The most frequent comment was that the students were too shy to participate in a role play exercise. Twenty-four teachers commented that the students were very shy and role play forced them to speak up.

TABLE 17

Phonics Exercises

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	23	7.9	7.9
Almost always	16	5.5	13.4
Often	112	38.4	51.7
Seldom	55	18.8	70.5
Almost never	50	17.1	87.7
Never	36	12.3	100.0
TOTAL	292*	100.0	

Effectiveness When Used			
Not effective	19	9.0	9.0
Moderately effective	134	63.8	72.9
Very effective	57	27.1	100.0
TOTAL	210	100.0	

Reasons For Non-use	
Space	1
Time	44
Unsuitable content	19
Unsuitable for students	21
Not available	1

*Note-Tables 17 is based on questions that were answered only by English teachers; this resulted in a smaller total number of applicable responses.

TABLE 18

Role Play

Frequency of Use

	FREQUENCY	PERCENT	CUM. PERCENT
Always	15	5.1	5.1
Almost always	39	13.1	18.2
Often	107	36.0	54.2
Seldom	92	31.0	85.2
Almost never	28	9.4	94.6
Never	16	5.4	100.0
TOTAL	297*	100.0	

Effectiveness When Used

Not effective	41	15.9	15.9
Moderately effective	140	54.3	70.2
Very effective	77	29.8	100.0
TOTAL	258	100.0	

Reasons For Non-use

Space	4
Time	32
Unsuitable content	12
Unsuitable for students	30
Not available	1

*Note-Tables 18 is based on questions that were answered only by English teachers; this resulted in a smaller total number of applicable responses.

Audio-Taping Student Stories

The responses, presented in Table 19, indicate that only 20% audio-taped student stories often or more frequently, 13% seldom did so and 67% almost never or never audio-tape students. Approximately 78% of the individuals who used this technique judged it to be moderately or very effective. Time, unavailable hardware and questionable suitability for students were selected as the reasons for non-use. This technique was the most seldom used and had the most reasons given for non-use.

Small Group Discussions

The responses, presented in Table 20, indicate that 64% used small group discussions often or more frequently, 20% seldom used it and 16% almost never or never used role play. Approximately 90% of the individuals who used small group discussions judged them to be moderately or very effective. Time and questionable suitability for students were selected as the reasons for non-use. The most frequent comment was that the students were too shy to participate in small group work.

TABLE 19

Audio-Taping Student Stories

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	16	5.4	5.4
Almost always	12	4.0	9.4
Often	32	10.8	20.2
Seldom	38	12.8	33.0
Almost never	48	16.2	49.2
Never	151	50.8	100.0
TOTAL	297*	100.0	

Effectiveness When Used			
Not effective	24	22.2	22.2
Moderately effective	59	54.6	76.9
Very effective	25	23.1	100.0
TOTAL	108	100.0	

Reasons For Non-use	
Space	3
Time	106
Unsuitable content	20
Unsuitable for students	40
Not available	90

*Note-Tables 19 is based on questions that were answered only by English teachers; this resulted in a smaller total number of applicable responses.

TABLE 20

Small Group Discussions

Frequency of Use	FREQUENCY	PERCENT	CUM. PERCENT
Always	43	14.3	14.3
Almost always	37	12.3	26.7
Often	111	37.0	63.7
Seldom	61	20.3	84.0
Almost never	27	9.0	93.0
Never	21	7.0	100.0
TOTAL	300*	100.0	

Effectiveness When Used			
Not effective	25	9.9	9.9
Moderately effective	131	51.8	61.7
Very effective	97	38.3	100.0
TOTAL	253	100.0	

Reasons For Non-use	
Space	9
Time	33
Unsuitable content	5
Unsuitable for students	27
Not available	1

*Note-Tables 20 is based on questions that were answered only by English teachers; this resulted in a smaller total number of applicable responses.

PART B

TOPICS FOR FUTURE PROFESSIONAL DEVELOPMENT

Respondents were requested (Question 7) to rank certain topics for future professional development, and to write-in other suggestions. The extensive teacher comments to Question 7m, identifying topics and suggestions for future in-service training are included in Appendix E ,TEACHERS' COMMENTS. Ways to overcome student shyness, stimulate student participation and motivate the adult learner were the most frequent suggestions. Forty teachers commented that seminars and workshops were needed to help teachers stay aware of latest methods and techniques. One teacher commented that, "It is still very book oriented, typically Singaporean style. Ways must be found to get students to speak more and create an informal atmosphere where they can talk more."

The teachers were asked to identify specific BEST/WISE lessons/concepts that they would like to see presented by experienced BEST/WISE teachers (Question 7k); the identified lessons are included in Appendix E. Demonstrations on grammar lessons were identified most frequently. Also included are the respondents' reasons for not ranking demonstrations as an important professional development activity

The teachers were asked to rank the topics suggested in questions 7a to 7j on a scale ranging from (1) Not Important to (4) Very Important. "Motivating Adult Learners" and "Diagnosing

Student Learning Problems" were ranked the highest with mean scores of 3.62 and 3.53 respectively, with 233 people ranking "Motivating Adult Learners" as very important and 208 people ranking "Diagnosing Student Learning Problems" as very important. Only "Practice Teaching" and "Lessons Presented by Experienced BEST/WISE Teachers" received mean scores below the moderately important rank of 3 (Tables 21-31).

TABLE 21

Motivating Adult Learners

	FREQUENCY	PERCENT
Not important	4	1.2
Marginally imp.	22	6.7
Moderately imp.	68	20.8
Very important	233	71.3
TOTAL	327	100.0

Mean 3.62 Mode 4

TABLE 22

Diagnosing Student Learning Problems

	FREQUENCY	PERCENT
Not important	7	2.1
Marginally imp.	19	5.8
Moderately imp.	96	29.1
Very important	208	63.0
TOTAL	330	100.0

Mean 3.53 Mode 4

TABLE 23

Updating Specialty (English)

	FREQUENCY	PERCENT
Not important	4	1.3
Marginally imp.	26	8.2
Moderately imp.	120	38.1
Very important	165	52.4
TOTAL	315	100.0

Mean 3.42 Mode 4

TABLE 24

Problem Solving Techniques

	FREQUENCY	PERCENT
Not important	8	3.5
Marginally imp.	22	9.7
Moderately imp.	69	30.4
Very important	128	56.4
TOTAL	227*	100.0

Mean 3.40 Mode 4

*Note-Many English teachers did not rank this item.

TABLE 25

Questioning Techniques

	FREQUENCY	PERCENT
Not important	7	2.1
Marginally imp.	37	11.3
Moderately imp.	126	38.7
Very important	156	47.9
TOTAL	326	100.0

Mean 3.32 Mode 4

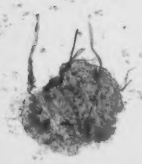

TABLE 26

Updating Specialty (Mathematics)

	FREQUENCY	PERCENT
Not important	6	2.6
Marginally imp.	27	11.8
Moderately imp.	95	41.7
Very important	100	43.9
TOTAL	228*	100.0

Mean 3.27 Mode 4

*Note-Many English teachers did not rank this item.

TABLE 27

Study Skills

	FREQUENCY	PERCENT
Not important	8	2.5
Marginally imp.	44	13.6
Moderately imp.	142	43.8
Very important	130	40.1
TOTAL	324	100.0

Mean 3.22 Mode 3

TABLE 28

Using Teaching Aids

	FREQUENCY	PERCENT
Not important	12	3.7
Marginally imp.	53	16.2
Moderately imp.	133	40.7
Very important	129	39.4
TOTAL	327	100.0

Mean 3.16 Mode 3

TABLE 29

Planning Specific Lessons

	FREQUENCY	PERCENT
Not important	15	4.6
Marginally imp.	59	18.0
Moderately imp.	122	37.3
Very important	131	40.1
TOTAL	327	100.0

Mean 3.13 Mode 4

TABLE 30

Practice Teaching

	FREQUENCY	PERCENT
Not important	49	15.1
Marginally imp.	86	26.5
Moderately imp.	122	37.7
Very important	67	20.7
TOTAL	324	100.0

Mean 2.64 Mode 3

TABLE 31

Demonstrations by Experienced BEST/WISE Teachers

	FREQUENCY	PERCENT
Not important	30	10.6
Marginally imp.	145	51.2
Moderately imp.	62	21.9
Very important	46	16.3
TOTAL	283	100.0

Mean 2.44 Mode 2

Sub-Group Comparisons

The responses to the questions in Parts A & B by sub-groups, (eg. age, gender, subject taught, programs taught, educational level, experience, and teacher certification) were generally very consistent. There were no differences related to age, gender or program taught. The BEST/WISE teachers constituted a fairly homogeneous group. However, there were a few cases where responses differed between the certified and non-certified teachers and among the teachers with more adult teaching experience.

The certified teachers claimed to use mathematics transparencies and models and measurement tools more frequently than did the non-certified teachers. Also, the certified teachers saw less need for "Motivating Students" as a professional development topic. The teachers with the least BEST or WISE experience ranked the need for professional development in "Questioning Techniques" significantly higher than did those with more experience (Tables 32-36).

It is not surprising that the certified teachers had a more preponderant preference for the use of transparencies, models and measurement tools in a mathematics classroom setting than did the non-certified teachers. Their competence in the subject area of mathematics should improve their ability to use these tools. The fact that the certified teachers did not rank the professional development topic "Motivating Students" as high as did non-certified teachers could indicate either that the certified teachers feel they are successful at motivating the students or that they find

the adult students more motivated than the school children. The teachers with more BEST/WISE experience did not rank the professional development topic "Questioning Techniques" as high as did the teachers with less adult education experience, thus indicating that confidence in their questioning techniques had been gained with experience. These few differences are not unexpected. What is somewhat surprising is that there are only these 4 instances of significant differences in all of the sub-group responses. Considering the diversity of their training and experience, the BEST/WISE teachers are remarkably consistent in their expressed needs for specific topics for future professional development.

TABLE 32

FREQUENCY OF USE OF MATH TRANSPARENCIES BY CERTIFICATION
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	23.6250	23.6250	11.3994	.0010
WITHIN GROUPS	124	256.9861	2.0725		
TOTAL	125	280.6111			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	54	3.4444*	1.3690	.1863	3.0708-3.8181
Non-cert	72	4.3194	1.4901	.1756	3.9693-4.6696
TOTAL	126	3.9444	1.4983	.1335	3.6803-4.2086

*Note-low score indicates more frequent use.

TABLE 33

FREQUENCY OF USE OF MODEL'S & MEASUREMENT TOOLS BY CERTIFICATION ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	11.2115	11.2115	5.7393	.0181
WITHIN GROUPS	123	240.2765	1.9535		
TOTAL	124	251.4880			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	54	3.5926*	1.3391	.1822	3.2271-3.9581
Non-cert	71	4.1972	1.4404	.1709	3.8562-4.5381
TOTAL	125	3.9360	1.4241	.1274	3.6839-4.1881

*Note-low score indicates more frequent use.

TABLE 34

MOTIVATING STUDENTS BY CERTIFICATION ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	2.1934	2.1934	5.0600	.0252
WITHIN GROUPS	323	140.0097	.4335		
TOTAL	324	142.2031			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	138	3.5290	.7065	.0601	3.4101-3.6479
Non-cert	187	3.6952*	.6206	.0454	3.6057-3.7847
TOTAL	325	3.6246	.6625	.0367	3.5523-3.6969

*Note-high score indicates more importance

TABLE 35

QUESTIONNING TECHNIQUES BY NUMBER OF BEST COURSES TAUGHT ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	2	4.6352	2.3176	3.7294	.0257
WITHIN GROUPS	201	124.9089	.6214		
TOTAL	203	129.5441			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
1-10 courses	151	3.3974*	.7490	.0610	3.2769-3.5178
11-20	36	3.0833	.8742	.1457	2.7875-3.3791
21 plus	17	3.0000	.9354	.2269	2.5191-3.4809
TOTAL	204	3.3088	.7988	.0559	3.1985-3.4191

*Note-high score indicates more importance

TABLE 36

QUESTIONNING TECHNIQUES BY NUMBER OF WISE COURSES TAUGHT ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	2.8860	2.8860	5.0390	.0260
WITHIN GROUPS	174	99.6538	.5727		
TOTAL	175	102.5398			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
1-2 courses	95	3.4421*	.6639	.0681	3.3069-3.5773
3 plus	81	3.1852	.8531	.0948	2.9965-3.3738
TOTAL	176	3.3239	.7655	.0577	3.2100-3.4377

PART C -PRINCIPLES OF ADULT LEARNING SCALE (PALS)

The BEST/WISE Teacher Means On PALS Compared To The North American Population Means

In Part C of the questionnaire, the extent of the support by the BEST/WISE teachers for a collaborative student-centered teaching style as measured by Conti's Principles of Adult Leaning Scale was investigated. The PALS instrument provides sub-scores for 7 factors and a total score, the summation of the factors. This scale was designed so that a high score indicates a more student-centered approach and a low score indicates a more content-centered approach. As was predicted in Hypothesis restated below, there is a significant statistical difference between the respective BEST/WISE teachers' and the North American norms obtained by Dr. Gary Conti.

Research Hypothesis #1 -BEST/WISE teachers adhere to the more traditional teacher/content-centered teaching style rather than the collaborative style as measured by PALS.

Null and Alternate Hypotheses

Ho: The difference between the mean scores on the total and each of the 7 factors of the teaching mode, as measured by PALS, for BEST/WISE teachers subtracted from the corresponding established North American mean scores will be zero.

Ha: The difference between the mean scores on the total and each of the 7 factors of the teaching mode, as measured by

PALS, for BEST/WISE teachers subtracted from the corresponding established North American mean scores will be greater than zero.

The BEST/WISE teachers' Total Score mean was 126 compared to the established North American mean of 146 (TABLE 37). This highly significant difference was consistently shown in all the PALS factors. As noted in the literature review, Chapter II, this traditional teacher/content-centered style is deeply rooted historically in the Confucian educational traditions of scholarship and in the British educational influence in Singapore. However, the BEST/WISE teachers' scores on Factors 1 and 3 did not deviate quite so far from the established norms as did the other factors. Factor 1, Learner-Centered Activities, measures the willingness of teachers to encourage students to initiate action and take more responsibility for their learning. The role of the teacher should be that of a facilitator of the learning process, not only a dispenser of information. Factor 3, Relating To Experience, measures teachers' recognition of the importance of the adult students' prior experience to the learning situation. Unlike the children, the adults bring to the class the experiences of making their living, marrying, having children, taking on community responsibilities and being responsible for others. As these two concepts were emphasized in the pre-service training, it is interesting to note that the mean scores indicated some deviation from the traditional approach on these factors. The implications of the PALS survey are discussed in

[illegible] in the last section of this chapter, Findings and Implications of the Questionnaire.

TABLE 37

PALS-TOTAL AND FACTOR SCORES

PALS TOTAL SCORE

SAMPLE		N.AMERICAN POPULATION
MEAN	125.705	MEAN=146
STD DEV	14.760	STD=20
S.E. MEAN	.814	
VARIANCE	217.847	
SUM	41608.500	
F Ratio=18.44		
F Prob <.001		

FACTOR1-LEARNER CENTERED

MEAN	34.816	MEAN=38
STD DEV	8.094	STD=8.3
S.E. MEAN	.445	
VARIANCE	65.511	
SUM	11524.000	
F Ratio=6.73		
F Prob <.01		

FACTOR 2-PERSONALIZING INSTRUCTION-

MEAN	25.113	MEAN=31
STD DEV	4.734	STD=6.8
S.E. MEAN	.260	
VARIANCE	22.41[illegible]	
SUM	8312.500	
F Ratio=15.73		
F Prob <.001		

FACTOR 3-RELATING TO EXPERIENCE

MEAN	19.307	MEAN=21
STD DEV	5.567	STD=4.9
S.E. MEAN	.306	
VARIANCE	30.993	
SUM	6390.500	
F Ratio=6.28		
F Prob <.01		

TABLE 37 - CONTINUED

FACTOR 4-ASSESSING STUDENT NEEDS

SAMPLE		N.AMERICAN POPULATION
MEAN	11.144	MEAN=14
STD DEV	4.092	STD=3.6
S.E. MEAN	.225	
VARIANCE	16.742	
SUM	3688.500	
F Ratio=14.41		
F Prob <.001		

FACTOR 5-CLIMATE BUILDING

MEAN	14.145	MEAN=16
STD DEV	3.002	STD=3.0
S.E. MEAN	.165	
VARIANCE	9.012	
SUM	4682.000	
F Ratio=11.23		
F Prob <.001		

FACTOR 6-STUDENT PARTICIPATION IN LEARNING PROCESS

MEAN	10.497	MEAN=13
STD DEV	3.822	STD=3.5
S.E. MEAN	.210	
VARIANCE	14.606	
SUM	3474.500	
F Ratio=12.99		
F Prob <.001		

FACTOR 7-PERSONAL DEVELOPMENT

MEAN	10.684	MEAN=13
STD DEV	4.109	STD=3.9
S.E. MEAN	.226	
VARIANCE	16.881	
SUM	3536.500	
F Ratio=10.79		
F Prob <.001		

Note-In all cases of the PALS results the valid observations are 331; there are no missing observations.

The BEST/WISE PALS Scores Compared by Sub-groups

Differences in the PALS mean scores of certain sub-groups of BEST/WISE teachers were also investigated. As was predicted in Hypothesis 2, restated below, there is a significant statistical difference between sub-groups of BEST/WISE teachers.

Research Hyposthesis #2 -The mean scores on the total score and each of the 7 factors of the teaching modes, as measured by PALS, will differ by 'some sub-group' of the BEST/WISE teachers.

Null and Alternate Hypotheses

H_o: The mean scores of the total score and each of the 7 factors of the teaching mode, as measured by PALS, will not differ for 'some sub-group' of the BEST/WISE teachers.

H_a: The mean scores of the total score and each of the 7 factors of the teaching mode, as measured by PALS, by 'some sub-group' will differ for at least one group of the BEST/WISE teachers

There is no significant relationship between the teacher's professed orientation toward a collaborative teaching style, as measured by PALS, and the respondent characteristics such as age, gender and experience. However, in a few cases, certification status and subject specialization revealed a significant relationship with scores on the PALS scale.

One-way Analysis of Variance revealed that certified teachers scored higher on the PALS Total Score, Factor 2- Personalizing Instruction, Factor 3-Relating Material to Students' Experience and

Factor 6-Student Participation in the Learning Process (Tables 38-41).

TABLE 38

PALS-TOTAL SCORE BY CERTIFICATION
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB
BETWEEN GROUPS	1	1499.7075	1499.7075	6.9763	.0087
WITHIN GROUPS	327	70295.2713	214.9702		
TOTAL	328	71794.9787			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	139	128.2302	15.7644	1.3371	125.5863-130.8741
Non-cert	190	123.9079	13.8013	1.0013	121.9328-125.8830

TABLE 39

PALS-FACTOR2-PERSONALIZING INSTRUCTION BY CERTIFICATION
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	330.2159	330.2159	15.3550	.0001
WITHIN GROUPS	327	7032.2917	21.5055		
TOTAL	328	7362.5076			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	139	26.2914	4.7480	.4027	25.4951-27.0877
Non-cert	190	24.2632	4.5550	.3305	23.6113-24.9150

TABLE 40

PALS-FACTOR3-RELATING TO EXPERIENCE BY CERTIFICATION
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	155.9435	155.9435	5.0769	.0249
WITHIN GROUPS	327	10044.3164	30.7166		
TOTAL	328	10200.2599			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	139	20.1043	5.2304	.4436	19.2271-20.9815
Non-cert	190	18.7105	5.7593	.4178	17.8863-19.5347

TABLE 41

PALS-FACTOR 6- PARTICIPATION IN LEARNING PROCESS BY CERTIFICATION
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	76.1753	76.1753	5.3213	.0217
WITHIN GROUPS	327	4681.0785	14.3152		
TOTAL	328	4757.2538			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Certified	139	11.0899	3.7141	.3150	10.4670-11.7128
Non-cert	190	10.1158	3.8335	.2781	9.5672-10.6644

Secondly, there were significant differences between mathematics and English teachers on a few PALS scores. English teachers scored higher on Factor 5 Climate Building. This difference may be related to the fact that one statement related to this factor is "I encourage dialogue among my students". English teachers also scored higher on Factor 7 Flexibility for Personal Development, i.e. allowing the students more scope for personal expression and growth; a sample statement related to Factor 7 is "I allow discussion of controversial subjects". The English curriculum does deal with many controversial subjects. (Tables 42 & 43)

TABLE 42

FACTOR 5-CLIMATE BUILDING BY SUBJECT TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	135.9686	45.3229	5.4301	.0012
WITHIN GROUPS	316	2637.5282	8.3466		
TOTAL	319	2773.4969			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Eng Only	189	14.5661	2.8081	.2043	14.0632-14.59
Eng & Maths	99	14.0606	2.6643	.2678	13.5292-14.79
Maths Only	23	13.7826	2.3347	.4509	12.8693-14.96
Neither	9	10.7778	6.5149	2.1716	5.7700-15.78

TABLE 43

FACTOR 7-PERSONAL DEVELOPMENT BY SUBJECT TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	146.1401	48.7134	2.9138	.0345
WITHIN GROUPS	318	5366.3747	16.3427		
TOTAL	321	5462.4876			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
Eng Only	190	10.7211	3.9509	.2866	10.1557-11.28
Eng & Maths	100	10.5500	3.9629	.3963	9.7637-11.38
Maths only	23	9.0807	4.6212	.9636	7.0886-11.08
Neither	9	13.778	6.5341	2.1780	8.7552-18.80

However, the following analysis of variance tests indicate interaction between the variables Ministry of Education Certification (A3) and Subject Taught (S), i.e., it is possible that more certified teachers were teaching English, and certification is the variable responsible for the variation on some PALS scores rather than subject specialization (Tables 44 & 45).

TABLE 44

FACTOR 5-CLIMATE BUILDING BY SUBJECT(S) &CERTIFICATION(A3)
ANALYSIS OF VARIANCE

Source of Variation	DF	Mean Square	F Ratio	F Prob
Main Effects	4	106.47	14.204	.000
A3	1	219.139	29.233	.000
S	3	121.613	16.223	.000
A3 & S	3	87.911	11.727	.000
Residual	308	7.496		
15 cases missing				

TABLE 45

FACTOR7-PERSONAL DEVELOPMENT BY SUBJECT (S) & CERTIFICATION (A3)
ANALYSIS OF VARIANCE

Source of Variation	DF	Mean Square	F Ratio	F Prob
Main Effects	4	113.075	7.063	.000
S	1	269.124	16.811	.000
A3	3	121.290	7.576	.000
A3 & S	3	113.694	7.102	.000
Residual	308	16.009		
15 cases missing				

There were significant differences between BEST and WISE teachers as well on a few PALS scores. The BEST teachers scored lower on Factor 3 Relating To Experience, Factor 4 Assessing Needs, Factor 5 Climate Building, Factor 7 Personal Development and the Total Score (Tables 46 to 50). The analysis of variance (Table 51) indicates strong interaction between the type of program taught (P) and Certification (A3) i.e., there were more certified teachers teaching in the WISE program; the WISE teachers must be certified. This test of interaction further supports the claim that the certified teachers constitute the sub-group that displays somewhat higher scores on some PALS factors. The differences between the certified and non-certified teachers is further explored in the classroom observations detailed in Chapter V.

TABLE 46

PALS-TOTAL SCORE BY PROGRAM TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	2478.2454	826.0818	3.8789	.0095
WITHIN GROUPS	325	69213.7850	212.9655		
TOTAL	328	71692.0304			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
WISE	107	127.3271	16.6218	1.6069	124.1413-130.5129
BEST & WISE	74	129.3311	13.7186	1.5948	126.1527-132.5094
BEST	130	122.9423	12.9816	1.1386	120.6896-125.195
Neither	18	122.1111	16.1787	3.8134	114.0656-130.1566
TOTAL	329	125.7599	14.7842	.8151	124.1564-127.3633

TABLE 47

FACTOR 3-RELATING TO EXPERIENCE BY PROGRAM TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	249.2666	83.0889	2.7176	.0447
WITHIN GROUPS	325	9936.7015	30.5745		
TOTAL	328	10185.9681			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
WISE	107	19.8037	5.4900	.5307	18.7515-20.8560
BEST & WISE	74	20.2703	3.7619	.4373	19.3987-21.1418
BEST	130	18.7577	5.7233	.5020	17.7645-19.7509
Neither	18	16.7778	9.3403	2.2015	12.1329-21.4226
TOTAL	329	19.3298	5.5727	.3072	18.7254-19.9342

TABLE 48

FACTOR 4-ASSESSING NEEDS BY PROGRAM TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	192.6769	64.2256	3.9180	.0090
WITHIN GROUPS	325	5327.5009	16.3923		
TOTAL	328	5520.1778			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
WISE	107	11.6215	3.9786	.3846	10.8589-12.3841
BEST & WISE	74	12.0000	3.6817	.4280	11.1470-12.8530
BEST	130	10.5154	4.0924	.3589	9.8052-11.2255
Neither	18	9.2778	5.4212	1.2778	6.5819-11.9737
TOTAL	329	11.1413	4.1024	.2262	10.6964-11.5863

TABLE 49

FACTOR 5-CLIMATE BUILDING BY PROGRAM TAUGHT
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	152.4200	50.8067	5.8742	.0006
WITHIN GROUPS	325	2810.9813	8.6492		
TOTAL	328	2963.4012			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
WISE	107	14.4533	2.8021	.2709	13.9162-14.9903
BEST & WISE	74	14.7635	2.7872	.3240	14.1178-15.409
BEST	130	13.8923	2.7080	.2375	13.4224-14.3622
Neither	18	11.7222	5.2334	1.2335	9.1197-14.3248
TOTAL	329	14.1520	3.0058	.1657	13.8260-14.4780

TABLE 50

FACTOR 7-PERSONAL DEVELOPMENT BY PROGRAM TAUGHT ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	174.4425	58.1475	3.5167	.0155
WITHIN GROUPS	325	5373.8174	16.5348		
TOTAL	328	5548.2599			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95% CONFIDENCE INTERVAL FOR MEAN
WISE	107	11.1075	4.1425	.4005	10.3135-11.9015
BEST & WISE	74	10.6351	3.5628	.4142	9.8097-11.4606
BEST	130	10.0692	3.9945	.3503	9.3761-10.762
Neither	18	13.1111	5.7893	1.3646	10.2321-15.9901
TOTAL	329	10.7006	4.1128	.2267	10.2545-11.1467

TABLE 51

PALS TOTAL SCORE BY PROGRAM TAUGHT (P) & CERTIFICATION (A3) ANALYSIS OF VARIANCE

Source of Variation	DF	Mean Square	F RATIO	F PROB
Main Effects	4	1304.770	6.334	.000
P	3	1098.311	5.332	.001
A3	1	3148.851	15.286	.000
P A3	3	676.353	3.283	.021
Residual	319	205.994		

4 cases were missing.

FINDINGS AND IMPLICATIONS-QUESTIONNAIRE

A SUMMARY

The following section presents a summary of the findings from the questionnaire data and the implications of those findings.

Part A-Demographics and Pre-service Training

The respondents were 51% male and 43% females with a mean age of 33.7 years; 42% had Ministry of Education Certification. (Certification was required of WISE teachers.) Of the certified teacher 64% were currently teaching in the regular school system, 69% had taught at the secondary or post secondary level, and 69% had more than 10 years teaching experience in the school system.

The BEST teachers had more adult education experienee, because the BEST classes hade been running longer. The majority of teachers who had taught BEST English had experience teaching at all 4 modules levels. The BEST mathematics teachers had the least experience at the lower levels because there were fewer low level mathematics classes offered. The WISE teachers' experience was mostly at the lower levels, because the program was only in its second year of operation at the time of the survey.

The BEST Pre-service Training was attended by 65% of the respondents, 54% attended the WISE Pre-service Training and 19% attended both.

The BEST and WISE classes were offered at 4 different types of centres in the evenings or between work shifts, and 97% of the

respondents had taught at either a Company or NTUC Centre. The types of centres are:

1 Company Centres-Facilities were provided on the premises of either a public company, eg. The Port of Singapore Authorities or a private company, eg., Apple Computer Ltd.

2 NTUC/PAP Centres-The Peoples Action Party (PAP) is the political party which has governed Singapore for 30 years and the National Trade Union Committee is the PAP affiliated labour union. Throughout Singapore there were NTUC/PAP multi-functional centres which served the recreational, educational, day-care and political needs of a community.

3 Vocational Institute Centres-Classes were held in the evenings in the VITB's Vocational Institutes where young students in the vocational stream attended day classes.

4 Other-This category includes the correctional institutes and a school for the hearing impaired.

The respondents were questioned about the acceptance of the educational technology presented in the pre-service training. Only respondents who had taught BEST or WISE mathematics were asked to respond to the questions regarding mathematics techniques; 127 respondents indicated that they had taught a mathematics class. The teachers were queried regarding 4 mathematics techniques that were emphasized in the Pre-service Training. The respondents were asked to indicate the frequency of use of each item; if used, to

indicate the effectiveness; and if not used, to select one or more reasons for non-use. A summary of the results follows in Table 52:

Table 52

Mathematics Techniques

Item	% Who Use Often or More Frequently	Effectiveness When Used	Reason for Non-Use
Transparencies	43%	91%	Unavailable
Models and Measurements	44%	96%	Unavailable
Problem Solving Techniques	70%	96%	Time & Unsuitable
Small GroupWork/ Peer Help	51%	88%	Time & Unsuitable

Only respondents who had taught BEST or WISE English were asked to respond to the questions regarding English techniques; 298 respondents indicated that they had taught an English class. The teachers were queried regarding 4 ESL techniques that were stressed in the Pre-service Training. They were asked to indicate the frequency of use of each item; if used, to indicate the effectiveness; and if not used, to select one or more reasons for non-use. Small group discussions were used the most frequently

and determined to be very effective by those who claimed to use the technique. A summary of the results is presented in Table 53.

Table 53

ESL Techniques

Item	% Who Use Often or More Frequently	Effectiveness When Used	Reason for Non-Use
Phonics Exercises	51%	91%	Time & Unsuitable
Role Play	54%	84%	Time & Unsuitable
Audio-Taping Students	20%	78%	Time & Unsuitable
Small Group Discussions	64%	91%	Time & Unsuitable

Part B-Future Professional Development Needs

A major objective of the study was to determine the teachers' perceptions of their professional development needs. They were asked to rank possible topics for future professional development workshops. The possible values were 1-Not Important, 2-Marginally Important, 3-Moderately Important and 4-Very Important. Table 54 identifies the 9 topics that were ranked Moderately or Very Important.

TABLE 54

Future Professional Development Topics

TOPIC	MEAN	MODE
Motivating Adult Learners	3.62	4
Diagnosing Student Learning Problems	3.53	4
Updating Specialty (English)	3.42	4
Problem Solving Techniques	3.40	4
Questioning Techniques	3.32	4
Updating Specialty (Mathematics)	3.27	4
Study Skills	3.22	3
Using Teaching Aids	3.16	3
Planning Specific Lessons	3.13	4

Ways to overcome student shyness, to stimulate student participation and to motivate the adult learner were the most frequent suggestions made by the teachers.

Sub-Group Comparisons of Parts A & B

The responses to most questions in Parts A & B were consistent for all sub-groups, (eg. age, gender, subject taught, program taught, educational level, experience and teacher certification). There were only four instances of significantly different responses. The certified mathematics teachers claimed to use transparencies and models and measurement tools more frequently than did the non-certified teachers. The certified teachers saw less need for

"Motivating Students" as a professional development topic than did the non-certified teachers. The teachers with the least BEST & WISE experience ranked the need for professional development in "Questioning Techniques" significantly higher than did those teachers with more experience. However with the exception of these four responses the BEST/WISE teachers are a remarkably homogeneous group.

Part C-Principles of Adult Learning Scale

In Part C of the questionnaire, the extent of the support by the BEST/WISE teachers for a collaborative, student-centered teaching style as measured by Conti's Principles of Adult Leaning Scale was investigated. The PALS instrument provides sub-scores for 7 factors and a total score, the summation of the factors. This scale was designed so that a high score indicates a more student-centered approach and a low score indicates a more content-centered approach.

As was predicted in Hypothesis 1, restated below, of the research design, there is a significant statistical difference between the BEST/WISE teachers and the North American norms ascertained by Conti.

Research Hypothesis #1 -BEST/WISE teachers adhere to the more traditional teacher/content-centered teaching style rather than to the collaborative style as measured by PALS.

The statistical test on the difference of the means indicates that the difference is significant on all seven factors and the total score,

although the large 'n' of this sample exaggerates the significance to some extent. Also, the population standard deviations are so large that only the Total Score of the BEST/WISE sample falls outside 1 standard deviation of the population mean. However, the results indicate that the BEST/WISE teachers employed a more content-centered approach and a less collaborative style than did the North American teachers.

This difference should not be construed as a negative evaluation or criticism of the BEST/WISE teachers. Historically Singapore educators have employed a lecture approach and the impressive Singapore academic results, as outlined in the Singapore educational history in Chapter II, indicate that this approach has been employed successfully in the school system. Teacher comments, both during the teacher training sessions and on the questionnaire, highlight the teachers' perceptions that the shyness of the Singapore adult student is a deterrent to the use of student involvement activities. The other often cited deterent to student activites is the pressure of preparing the students for the external examinations. North American teachers of courses leading to external examinations, such as the adult General Educational Development (GED) courses, also take a far more content-centered approach. The BEST/WISE teachers ranked certain student activity-oriented methods as moderately to highly successful, i.e., role play in English, models in mathematics, and small group work in both mathematics and English. The reasons given for not using these activities were lack of time, lack of availability and

examination pressure rather than lack of enthusiasm for such approaches.

PALS Scores Compared By Sub-Groups

Differences in the PALS mean scores of certain sub-groups of BEST/WISE teachers were investigated. As was predicted in Hypothesis 2, restated below, there is a significant statistical difference between two sub-groups of BEST/WISE teachers.

Research Hyposthesis #2 -The mean scores on the total score and the 7 factors of the teaching modes, as measured by PALS, will differ by "some sub-group" of the BEST/WISE teachers.

There is no significant relationship between the teachers' professed orientation toward a collaborative teaching style, as measured by PALS, and sub-groups characterized by age, gender and experience. However, in a few cases, there is a significant difference between sub-groups characterized by certification, subject and program taught.

The certified teachers scored higher on the PALS Total Score, Factor 2 Personalizing Instruction, Factor 3 Relating Material to Students' Experience and Factor 6 Student Participation in the Learning Process. English teachers scored higher on Factor 5 Climate Building and Factor 7 Flexibility for Personal Development. The teachers who taught WISE classes scored higher on Factors 3 Relating To Experience, Factor 4 Assessing Needs, Factor 5 Climate Building, Factor 7 Personal Development and Total Score. However, the anaysis of variance tests indicate an interaction between the

subject taught and certification and between the type of program taught and certification; i.e., there were more certified teachers teaching in the WISE program and more certified teachers teaching English.

In conclusion, Hypothesis #1 was sustained by the results of the questionnaire study. The BEST/WISE teachers adhered to the more traditional teacher/content-centered teaching style rather than the collaborative style as measured by PALS. Also Hypothesis #2 was supported by the results of the questionnaire study for at least one sub-group. There is a significant difference of the professed orientation toward a collaborative teaching style, on some factors measured by PALS, between subgroups characterized by certification.

However, although certification seems to identify a sub-group that consistently scored higher on the PALS scale, this was not corroborated by the classroom observations discussed in the next chapter. Chapter 5 presents the findings and results of the classroom observations and teacher interviews conducted by the author in Singapore approximately 6 months after the questionnaires were returned.

CHAPTER V
CLASSROOM OBSERVATIONS AND TEACHER INTERVIEWS

OBJECTIVES AND IMPLICATIONS OF OBSERVATIONS AND TEACHER INTERVIEWS

As mentioned in Chapter III, in Phase 2, the author attempted to corroborate the results of the questionnaire with 22 classroom observations and teacher interviews in Singapore. The major finding of the observations and interviews was that the majority of teachers had not been able to put into practice the theory and methods that were recommended in the pre-service teacher training. Nor is that too suprising. Pre-service teacher training of such a brief duration can only lay the ground work for educational change. Other administative support, structural changes, in-service training and resource support are required to operationalize those methods. The comments on the written questionnaire and in the teacher interviews covered a broad range of topics related to resources. Therefore, the teacher interviews and classroom observations attempted to identify resource needs.

The objectives of the classroom observations and teacher interviews were:

1. to compare the written questionnaire results regarding the difference between the BEST/WISE teachers' mean scores on the Principles of Adult Learning Scale (PALS) scores and the North American population means;

2. to corroborate the written questionnaire regarding the differences on PALS between certain sub-groups of teachers;
3. to corroborate the written questionaire results regarding the techniques and methods used/not used by teachers and their apparent effectiveness and suitability when used;
4. to corroborate the written questionnaire results relating to identified inservice needs of teachers;
5. to investigate availability of resources for teachers, and
6. to investigate participatory action research for future planning.

The observations were one and a half to two hours in duration. The Classroom Observation Form for English and Mathematics and Teacher Interview Form are included as Appendices B and C, respectively. The classes were randomly selected by VITB and are categorized in Appendix D. The interviews were conducted after the classroom observations. In most instances the interview was conducted over a cup of coffee or tea in the staff lounge or at the local "hawker center". As the author was known to the BEST/WISE teachers, the interviews were relaxed. All the questions on the Teacher Interview Form were covered in each session, but the interviewer varied the order to adjust naturally to the interests of the particular teacher. Pareek (1980) defines authenticity as "the capability of the interviewer to get unbiased responses from the respondent" (p.128). The interviewer must be: well acquainted with the topic; aware of cultural factors which might influence the

responses, and viewed by the respondents as sensitive to their concerns. These criteria were met, as the author resided in Singapore for two year while working for the V.I.T.B. on the BEST mathematics curriculum.

COMPARISON OF QUESTIONNAIRE WITH OBSERVATION and TEACHER INTERVIEW FINDINGS

The findings of the observations and teacher interviews are given below in relation to each of the objectives and compared with the questionnaire results.

PALS Scores

Objective 1, To corroborate the written questionnaire regarding the difference between BEST/WISE teacher's mean scores on the PALS scores and the North American population means.

The questionnaire identified a significant statistical difference between the BEST/WISE teachers and the North American norms and this was corroborated by the observations and interviews. It is not surprising that the teachers continue to teach in the way that they were taught, particularly when the educational system in Singapore has been academically outstanding. However, in an adult education program, more flexibility is required in order to attract adults to enrol and to retain them in a program. This is even more important now as the VITB endeavors to encourage more of the older workers to register and stay in the programs.

This is not easy when most BEST/WISE students are attending class after a long, hot day or night of work. Also, teacher comments, both during the teacher training session and on the questionnaire, highlight the teachers' perception of the shyness of Singapore adult students which acts as a deterent to the teachers using certain student involvement activities.

Items 1-21 on the classroom observation sheets were indicators of either student-centered or content-centered teacher presentations. These items concentrated on the opportunities provided for student talk/activity and the variety of methods employed as opposed to mostly teacher talk and use of only lecture method. A score was obtained for each teacher based on the following ranking per item: 3-Highly Student-centered, 2-Slightly Student-centered, and 1-Highly Content-centered.

Only 4 teachers were ranked as '3', highly student-centered, 7 were ranked as '1', highly content-centered, 11 were ranked '2', and the average for all 22 teachers was 1.9. The observations corroborated the questionnaire results on PALS, indicating the BEST/WISE teachers are more content-centered and lecture-oriented.

Parts D & E of the personal interview form were used to determine the teachers' personal preference for classroom techniques and the teachers' views on the 7 PALS factors: Learner Centered, Personalizing Instruction, Relating to Experience, Assessing Needs, Climate Building, Participation in Learning Process, and Flexibility for Personal Developement. Four of the 7 teachers

who ranked as content centered on the classroom observation claimed that the students expected, or were most comfortable with, a lecture approach; two stated that a dialect or Mandarin translation is always necessary in the ESL class. Generally, they felt that the students were too shy for role-play or speaking-out in class.

On the other hand, the teachers who ranked as highly student-centered indicated a belief in a variety of activities, "encourage and involve", "like role play", "varied questioning techniques", "a lot of repetition in different forms", "lots of activities", "building a good rapport comes first". When responding to the questions in Part D, most of the teachers indicated that the pressures of time, curriculum, and external examinations precluded such activities as: varying the assignments, holding individual conferences with students to discuss their learning needs/goals and allowing students to make some decisions in order to become more independent learners. The teachers ranked as content-centered had few comments to the questions on Part D other than yes or no. All of the teachers felt that the issue of relating class content to the adult students' everyday experiences was handled successfully by the curriculum materials; also, that the curriculum provides for discussion of controversial issues.

PALS Scores By Sub-Groups

Objective 2-To corroborate the written questionnaire regarding the differences on PALS between certain subsets of teachers.

There were significant differences between the mean scores of certified and non-certified teachers, but the observations did not corroborate the written questionnaire results. The difference on the student-centered ranking was not significant between the certified and non-certified teachers observed. (In order to insure a non-biased observation, teacher certification status was unknown during the classroom observation; it was ascertained later during the teacher interview.)

The 16 certified teachers had an average ranking of 1.9. The 6 non-certified teachers had an average ranking of 1.8. (The non-certified teachers were spread out in the three categories. One ranked a very high 3, three ranked 2 and two ranked1.)

However, the teacher interviews did in effect corroborate the written questionnaire results. The certified teacher responses in the teacher interviews were different from those of the non-certified teachers. For example, the certified teacher would say "Yes, I attempt to vary the educational objectives for certain students, but it is not possible due to pressure of time, limitation of resources, class size, etc." The non-certified teacher was more likely to say, "No, I can't vary the educational objectives". But neither group gave any indication of actually varying objectives in the classes. This is not to say that the certified teachers were less

than honest in their responses to the questionnaire, rather that they know the "educationally acceptable" answer. They know what should be done or what they might like to do, although they believe they cannot do it under existing circumstances.

Whether there are any differences between the English and mathematics teachers is questionable, as there were only four mathematics classes observed. However, the mathematics teachers observed were very content-centered. The 4 mathematics teachers ranked 1.5, while the 18 English teachers ranked 1.9. With respect to program the BEST teachers scored slightly higher than the WISE teachers on the classroom observations. The 9 BEST teachers ranked 2.0, and the 13 WISE teachers ranked 1.8. There were fewer certified teachers in the BEST group (67%) than in the WISE group (77%). Again, contrary to the written questionnaire results, the observation did not verify that the certified teachers actually used a more collaborative student-centered style.

The written questionnaire showed no significant relationship between the teachers' professed orientation toward a collaborative teaching style, as measured by PALS, and gender or age. This was corroborated in the classroom observations and the interviews. The written questionnaire showed no differences between Company, VITB, and NTUC centres, nor did the results of the observations, all were ranked 1.9.

Educational Technology Utilization

Objective 3-To corroborate the written questionnaire results regarding the techniques and methods used/not used by teachers and their apparent effectiveness and suitability when used

The BEST/WISE teachers ranked all 8 techniques as moderately successful, however, only "problem solving techniques" for mathematics and "small group work" for English were rated as frequently used.

The classroom observations did not corroborate the questionnaire results that small group work and varied problem solving techniques were used often or more frequently by more than 60 % of the teachers. Only 5 of the teachers observed used small groups to stimulate discussion. In the majority of instances, the teacher grouped the students, but then continued to lecture or to provide most of the opinions during "discussions". Only the 4 teachers with the rank of 3 had classes "buzzing" with talk in English and did not translate to Mandarin or dialect or Malaysian. The ratio of teacher talk to student talk was about 50/50 in those four classes. In all the other classes, it was closer to 95/5, and this 5% of student talk was usually "choral work". The author noted that all the teachers abhored a silence; if there was not an immediate student response the teacher either gave the answer or another clue. Their uneasiness about silence may have been slightly exagerated because of the presence of an observer.

It seems that the teachers' perception that the students are too shy to talk in class is often a self-fulfilling prophesy. The four teachers ranked '3' did not express the belief that the students were inherently shy, and their classes were buzzing with talk. After one particularly quiet class, conducted by a teacher who claimed the students were always very shy, the author toured the centre's recreational facilities which included a 'Karoke' Bar, a bar where the patrons provide the vocals for the musical entertainment. These "shy" students were all taking turns on the bandstand with a microphone singing the latest hits, some in English! Perhaps the students also have a pre-conceived notion that they must be quiet and dignified in school.

Models were not used in any of the mathematics classes nor were different problem solving techniques. In fact one teacher told the students to use only one technique even though the text gave several possible choices, unitary, ratio or equation approach for percentage problems. He said, "I prefer the unitary method, and you will find it the easiest".

In the interviews, the teachers ranked '3' and most of those ranked '2' rated group work, role play, audio tapes and visual aides as the most effective techniques, but they generally felt that the effectiveness varied from class to class, and module to module with the syllabus in the later modules too heavy to permit time for such activities. The teachers ranked 1 and some ranked 2 rated lecture as the most effective way to cover the syllabus in the allotted time.

Six of them said that it was impossible to get the shy students to take part in role-play activities.

The mathematics teachers felt that hands-on activities and board work were the most effective methods for participation, but time did not often permit either. (Again the number of mathematics classes observed was very small and generalizations were not possible.) Once again, the teacher interviews corroborated the questionnaire as to what most teachers would like to do, but believed they could not do under the existing circumstances, i.e., lack of time and shy students.

Identified In-service Needs

Objective 4-To corroborate the written questionnaire relating to identified inservice needs of teachers

The teacher interviews corroborated the questionnaire except for slight changes in order. The top four items were:

a. Updating Speciality-English (grammar, phonics, phonetics)
b. Motivating Adult Learners
c. Questioning Techniques
d. Diagnosing Student Learning Problems.

When asked if they felt it was more important to become aware of the latest theories, techniques and methods of adult education or to share experiences, problems and ideas with each

other (Question 9-Interview Form), they all emphasized that both approaches are important for profesional development.

Resource Availability

Objective 5-To investigate availability of resources for teachers

Although the questionnaire did not specifically ask about resources, unavailability of resources was frequently given as a reason for not using such items as overhead transparencies, mathematics models, etc.

The situation regarding resource availability varied greatly from centre to centre. Some companies were well-equipped and some were not; the same was true for NTUC/PAP centres. Some of the best classes observed were in small, ill-equipped rooms and some of the worst were in well-equipped centres. The most important variable was the teacher; the dynamic teachers had stimulating classes. That fact not withstanding, the resources are important for the "not so" dynamic teachers and make life easier for the dedicated teachers who "make-do" or find their own resources. The teachers without working overhead projectors or math models and measurement tools rated those items as very important. Most teachers felt that more and better overhead transparencies for all modules was very important. While some certified teachers said that they had their own reference books, the non-certified teachers ranked access to such books as important. A

newsletter for the teachers with andragogic advice, methods and ideas; a collection of games, worksheets and activities on specific topics from the modules; and access to easy reading materials for students were all ranked as very important resources.

Participatory Action Research

Objective 6-To investigate participatory action research for planning future in-service training

The purpose of this study was to investigate the teachers' perceptions of the effectiveness of the pre-service teacher training. However, in the process of giving their opinions on the teacher training, the teachers commented on many other aspects of the BEST/WISE programs. These opinions expressed by the BEST/WISE teacher in the written questionnaire and the personal interviews will be considered by the VITB in planning future inservice training, curriculum revisions and administrative planning.

Toward this end the author held one group meeting with 30 teachers at a V.I. Centre. The teachers were asked if they would like to become involved in these activities, i.e., were they interested in Participatory Action Research. It was explained that Participatory Action Research is a process in which the "community" participates in the analysis of its own reality in order to present problems and look for solutions. It involves collective investigation, collective analysis, and collective action. In an educational setting, it can strengthen the awareness of the teachers

of their own abilities and resources and, therefore, gather support for innovations, or for the status quo if that is their conclusion.

A beginning was made on Participatory Action in 1988 when AVC personnel conducted two Train The Trainers sessions. The BEST/WISE teachers who attended these sessions conducted two Pre-service Teacher Training session in 1989 to increase the numbers in the pool of potential BEST/WISE teachers. Thus, responsibility for pre-service training, modeled after the AVC sessions, was handed over to local teachers and administrators. This was a commendable start.

When teachers were asked in the interviews about Participatory Action Research, some of the teachers said that they are just too busy to take on any more duties. However, the part-time teachers, semi-retired teachers and even some teachers with another full-time job indicated a keen interest in becoming more involved. Because it was difficult to organize meetings around a convenient time for most teachers, a Newsletter was determined to be the best initial vehicle for sharing ideas, problems and solutions.

If teachers received recognition from the VITB for contributions to the Newsletter, the teachers would learn that their ideas and concerns were of interest to the administration, and this could generate enthusiasm for more active participation. Many teachers expressed concern that criticism of any part of the program or curriculum would be detrimental to their continued service with the Board. The teachers must be convinced that these

are not sensitive political issues but pedagogic issues that can, and must, be openly debated. The Newsletter would include:

-articles on adult education from journals and books,

-reviews of education books in the VITB library,

-lists of resources in the VITB library,

-articles by BEST/WISE teachers on problems and solutions, and

-student writings

In summary, the observations corroborated the questionnaire results that the BEST/WISE teachers are more content centered than student-centered and feel more comfortable with a lecture style of delivery. The teacher interviews also produced similar findings to those of the questionnaire regarding the perceived future in-service needs.

The two techniques highly ranked in the questionnaire results, small group work in English and varied problem solving techniques in mathematics, were not effectively used in most of the classrooms observed. The teachers' perceptions of the students' shyness generally appeared to be a self-fulfilling prophesy. Also, the observations did <u>not</u> indicate that the certified teachers used a more student-centered approach than the non-certified teachers. However, the teacher interviews, in a way, did corroborate the questionnaire results, in that the certified teachers evidenced a clearer idea of different activities and approaches that they would like to attempt, but time and other constraints do not permit it.

Chapter VI lists the recommendations and conclusions suggested to the V.I.T.B.

CHAPTER VI

RECOMMENDATIONS AND CONCLUSIONS

Chapter VI presents a summary restatement of the purpose of the study, the problem addressed and the objectives of the study followed by the specific recommendations sent to the VITB, generalizations and the conclusion.

PURPOSE OF STUDY

The A.V.C. pre-service teacher training sessions encouraged the BEST/WISE teachers to try a student-centered approach despite the tradition of a content-centered approach in the Singapore education system. The sessions included theory of adult education and specific methodology for teaching Mathematics and English, based on the principles of a student centered adult education philosophy, which was consistant with the BEST/WISE curriculum design. The role of the teacher, lesson planning, classroom management and subject methodology all focused on the seasoned proverb:

> *Tell me I'll forget, show me I may remember, but involve me and I'll understand.*

The last session, offered in December1988 by the A.V.C., trained local staff to take over the pre-service teacher training, so it was critical at this time to identify the degree to which the practitioners, who took the previous courses, supported and adhered to the student-centered collaborative teaching mode and ascertain their perceptions of its effectiveness. The major goal of

this study was to make future V.I.T.B. teacher training for BEST/WISE teachers more effective.

STATEMENT OF THE PROBLEM

This research was intended to determine if the pre-service teacher training was effective in promoting a student-centered approach for the BEST and WISE courses. The thrust of the study was to determine:

1. if the teachers favored a student-centered or subject-centered approach;
2. if the teachers used any of the theory and methods suggested;
3. if used were they effective in the BEST/WISE setting; and
4. if not attempted, what were the reasons.

OBJECTIVES OF THE STUDY

The objectives of the research were to determine:

1. if there was acceptance of the educational technology presented in the Pre-service Teacher Training Sessions (Technology is used here in the sociological form which embraces all techniques such as management, work groups, physical layout, etc.);
2. if the technology was not accepted, why not; and
3. the most critical concepts and methods, as perceived by the BEST/WISE teachers, around which any future teacher training should be planned.

RECOMMENDATIONS

This study was constructed to look to the future, as the V.I.T.B. was moving to internalize future teacher training. Therefore, this follow-up research and evaluation was designed to provide insight into the subsequent development and effective application of the knowledge and skills presented in the pre-service teacher training sessions. The questionnaire's covering letter emphasized the future benefits that should result from the study to encourage teacher participation. The thrust of the research component of this thesis and the theory was to put the results in a broad framework by attempting to answer the question, "What is necessary to make future training of adult basic education teachers more effective in Singapore?" To that end, the following recommendations were sent to the Director of the VITB.

Recommendations for Teacher Involvement

To enable the teachers to try different methods, techniques and activities that would result in a more students-centered approach, several actions are necessary.

1. Test for Oral English Proficiency in all Modules. Singapore is a meritocracy and therefore a test-oriented society. The teachers will teach only to the concepts that will be tested, and spoken English proficiency is only tested after WISE Module 4, and then to a limited degree. Given that it is important that the students learn to speak clearly in English, then spoken English must make up a larger part of the

student evaluation. Obviously, testing all the students' oral proficiency during the external examinations would be time consuming and costly. One solution is to take the teacher's grades on the students' spoken English as a part of their final mark. Another solution is to have the Centre Supervisors grade the students on their oral proficiency during the last third of the term, and use this grade as a part of their final mark. An advantage of this is to enable the Centre Supervisors to become more actively involved with the students. Centre Supervisors with large numbers of classes would require assistance from the VITB personnel.

2. Teacher Input Into Curriculum. Implications of recommendation 1 should be considered in the current revision of the BEST English curriculum as should the teachers' comments regarding a lighter curriculum for English Modules 3 and 4 to provide more time for activities. The BEST teachers should be asked to contribute suggestions for the English and Mathematics revision.

3. Classroom Visitations. A classroom consultant is needed to visit classes on an ongoing basis to do on-the-spot demonstrations of techniques and to assist teachers with difficult "shy" groups. This person must not have a supervisory role but more of a collegial, non-threatening role. All the teachers seemed genuinely pleased to have a visitor as did the students. They did not find it threatening. This

person could identify the best teachers to use as models for in-service training.

4. In-Service Training Possibilities Should be Explored. The pre-service training only permited an introduction to some ideas. More training is needed to narrow the gap between theory and practice. Many teachers know what they would like to try, but they lack the confidence to operationalize it. The first in-service session should concentrate on oral communication, eg,

   -motivating students to speak;

   -questioning techniques (teachers must wait for answers);

   -improving pronunciation (teachers and students);

   -planning a lesson in which the students talk more than half the time, and

   -videotapes of exciting student-centered BEST/WISE classes (If well done, these could be used for TV promotional advertising)

Recommendations for Resource Needs

5. Equipment. Although most centres are well-equipped, a few are not. There were two instances where the overhead projector had not been working for some time, and the teacher didn't seem to know who was responsible for repairs. Mathematics models and measurement tools are not available in many classes.

6. Transparencies. There is a need for more creative overhead transparencies, not just a duplication of pictures in the text, but complementary to the text. Some of the teachers had creative transparency ideas that should be shared (See Newsletter below).

7. Easy Readers. Many teachers expressed a need for easy reading materials for their students to supplement the texts. There are many good adult easy reading books. These could be circulated out of the VITB library at least to the larger centres. This might require keeping the VITB library open 1 or 2 nights a week, so that centre supervisors, teachers or company personnel could access the Easy Readers on a rotational basis. That would also get them into the library to look over other adult educational materials.

8. Supplementary Materials. Compile a collection of games, worksheets and activities on specific curriculum topics that teachers found or created and thatother teachers might adapt and use.

9. Newsletter. In the interviews, and at a general meeting, there was enthusiasm for the Newsletter as a way to facilitate communication among the teachers. As mentioned above, this should be an academic publication, unlike the NTUC newsletter, but also not too theoretical. With a desktop publishing package, an attractive Newsletter could be produced at minimal cost. The first issue should have a lot of

teacher input to encourage other teachers to submit articles or questions.

The results of the written questionnaire, the observations and the teacher interviews indicate that the teachers came away from the pre-service training with many new ideas for classroom activities. A few teachers have been able to operationalize those ideas successfully, but most have not. That is not too suprising; eight days cannot change a lifetime of educational tradition. The teachers need ongoing support, encouragement and continual in-service training. Changes in classroom teacher behavior require not only curriculum changes but also evaluation/examination changes and administrative changes.

As discussed in Chapter II, Bernstein identifies the three message systems of formal educational knowledge as curriculum, pedagogy and evaluation. The influence of Chinese and British tradition on Singapore education has resulted in a curriculum that has strong classification, i.e., distinct boundaries between content specialities. Framing is the structure of the relationship of teacher and student in the message system pedagogy. The Chinese and British tradition stresses strong framing, i.e., few options for the teachers and students. Any change to the message systems of curriculum and pedagogy without a consistent change in evaluation will have little effect. The cooperation of the teachers depends on "what counts" in the final evalutaion.

The content-centered, lecture method is the most effective way to "get through" a curriculum and prepare students for an external

examination. The student-centered, activity-oriented approach is not as efficient, but it is more successful at attracting and retaining students in a non-threatening classroom environment. (The 4 teachers ranked 3 have kept the same students with them through several modules with few drop-outs.) While WISE Module 4 is restricted by the 'N' level external examination requirements, there is room for flexibility in BEST and the lower levels of WISE. The teachers need to know that they are free to be flexible, but they need ongoing in-service training, so that they are able to capitalize on that flexibility.

It is not surprising that some of the BEST/WISE teachers did not find the innovations suggested in the teacher training course effective or did not try them at all for one reason or another. What is surpring is that so many did try, with varying degrees of success. It is time to enter a modification phase wherein those ideas, and others, can be adapted or modified to fit the situation and capabilities of the teachers and students. Primacy in this modification phase must be given to the BEST/WISE teachers (and students) by means of Participatory Action Research.

GENERALIZATIONS

> One crucial problem in cross-cultural surveys and interviews is to make them meaningful to the cultures in which thay are conducted, as well as ensuring their comparability and hence appropriateness for cross-cultural comparisons. (Pareek, 1980, p.130)

Meaningfulness of the questionnaire, observations and interviews to the Singapore culture was of paramount importance in this project. The author attempted to ensure the appropriateness of the PALS instrument for cross-cultural comparisons by asking the same questions in different ways in the other two parts of the questionnaire, in the teacher interviews, and in the classroom observations. This process was employed to ensure overall authenticity, i.e., unbiased and genuine responses.

Although the results of this research are Singapore specific, some generalizations can be made. Any teacher pre-service training which attempts to initiate a change in established educational technology must work on acceptance by the front-line agents, the teachers and students. The planners must look to the teachers' attitudes, behaviors and their responses to change. The teachers are the purveyors of traditional knowledge and the agents of change. On-going inservice training and a communication network for teacher input and feedback are needed to minimize the conflict between these two roles. The teachers are in the position to ascertain the students' perceptions of the usefulness of the change and their willingness to accept the change. When the system uses central, top-down planning, it is necessary to provide for social interaction strategies to ensure acceptance.

CONCLUSION

The tradition of centralized planning in Singapore, a strong government commitment to education and available funding from

the Skills Development Fund permitted the VITB to a) conduct a thorough needs-analysis of the basic education and skill training requirements of the adult population; b) develop curriculum materials relevant to the Singapore culture; and c) offer pre-service training to potential teachers of the BEST and WISE programs. The administration of the Alberta Vocational College, after conducting a needs analysis, provided the pre-service training and then trained local personnel to take over the responsibility for the pre-service training. This is a highly commendable, well-planned, researched and documented project which compares favorably with other adult basic education projects around the world. Therefore, it should not fall short of its full potential. The results of this follow-up study on the pre-service training indicate that the BEST/WISE programs can reach that potential with the development of regular inservice training for the teachers and the development of a network whereby the teachers have on-going input into curriculum revisions. The author agrees with Dove,1986, that:

> "There is increasing realisation today that teachers cannot be expected by planners at the centre to be implementers of curriculum reform without being involved in the whole cycle of planning, development, implementation and evaluation. They are more likely to develop positive attitudes if they participate in formulating the aims and strategies for change. ... They are more likely to be enthusiastic if they acquire skills in utilising new methods of teaching or new subject matter through on-the-job training and practice." (p.52)

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APPENDIX A

QUESTIONNAIRE AND COVERING LETTER

Letter to all BEST and WISE Teachers

You participated in at least one Teacher Training Workshop conducted by the Vocational Industrial Training Board in collaboration with the Alberta Vocational Centre/Edmonton between 1984 to 1988. Do you remember all the red, blue and green group pictures, the luncheons and teas? We all had a lot of fun. The last session, offered by Bill, Jim and Gordon in December '88, was aimed at preparing Singapore teachers to conduct future workshops. Your help is needed to make future workshops effective.

Since you attended the earlier AVC workshops you have taught one or more BEST or WISE classes. With this added experience as an adult educator, you know what 'works' in BEST/WISE classes and what does not, and could offer some suggestions for future workshops. The attached questionnaire will give you the opportunity to express your attitudes and opinions. Your response will be strictly anonymous; there are no identifying numbers on the form.

DO NOT sign your name to the form or to the answer sheet for PART B. The PART B answer sheet is intended for machine marking. If possible please use a soft lead pencil and DO NOT FOLD the answer sheet.

Although I will use the results of this questionnaire for my thesis research on teacher training effectiveness, the major purpose of this study is to make future V.I.T.B. teacher training sessions more effective. YOUR COMMENTS ARE VERY IMPORTANT. Please help by returning this completed questionnaire to V.I.T.B. in the return envelope provided.

A summary of the results of the survey will be available at V.I.T.B. before May of1990. Thank you for your cooperation,

_____

Madeline Needham

QUESTIONNAIRE FOR BEST AND WISE TEACHERS

PART A

1. Gender: Male ( ) Female ( )

2. Age___

3a. Are you a certified teacher with the Ministry of Education? YES ( ) NO ( )

If you checked NO on Question 3a go to Question 4.
If you checked YES continue with Question 3.

3b. What is your current status with the Ministry of Education?
Teaching ( ) Not Currently Teaching ( ) Retired ( )

3c. Check the highest level that you have taught.
Pre-primary ( ) Primary ( ) Secondary ( ) Post-secondary ( ) Tertiary ( )

3d. Your total teaching experience with the Ministry of Education is ____years.

4a. How many BEST and WISE courses have you taught?

BEST _____ WISE _____

4b. Check the BEST/WISE levels and subjects that you have taught.

BEST ENGLISH:Module 1___Module 2___Module 3___Module 4___
BEST MATHS: Module 1___Module 2___Module 3___Module 4___
WISE ENGLISH:Module 1___Module 2___Module 3___Module 4___
WISE MATHS: Module 1___Module 2___Module 3___Module 4___

4c. The BEST/WISE classes you taught were offered at:

NTUC Centres___ Company facilities___ Voc. Inst.___ Other___

4d. Check the BEST/WISE Teacher Training Sessions that you attended.

BEST TEACHER TRAINING ( )
ADVANCED BEST TEACHER TRAINING ( )
WISE TEACHER TRAINING ( )

Answer Question 5 only if you taught mathematics

5. In Questions **5a,b,c,d**, please indicate the frequency of use of the following techniques or teaching aids in your BEST or WISE mathematics classes. Use the scale at the right. ⟶

ALWAYS
ALMOST ALWAYS
OFTEN
SELDOM
ALMOST NEVER
NEVER

Next-If you select 4 or 5 check one or more reasons in Box A.
If you select 0, 1, 2 or 3 check one response in Box B.

5a. Transparencies for the overhead projector — a. 0 1 2 3 4 5

A-REASONS FOR NOT USING	B-EFFECTIVESNESS RANKING
( )Lack of space	( )Not effective
( )Lack of time	( )Moderately effective
( )Not suitable for content	( )Very effective
( )Not suitable for students	
( )Not available	Comments_____
( )Other	

5b. Models and measurement tools (eg. metre sticks, scales) — b. 0 1 2 3 4 5

A-REASONS FOR NOT USING	B-EFFECTIVESNESS RANKING
( )Lack of space	( )Not effective
( )Lack of time	( )Moderately effective
( )Not suitable for content	( )Very effective
( )Not suitable for students	
( )Not available	Comments_____

5c. More than one problem solving technique for a given topic — c. 0 1 2 3 4 5

A-REASONS FOR NOT USING	B-EFFECTIVESNESS RANKING
( )Lack of space	( )Not effective
( )Lack of time	( )Moderately effective
( )Not suitable for content	( )Very effective
( )Not suitable for students	
( )Not available	Comments_____
( )Other	

5d. Small Group Work/Peer tutors — d. 0 1 2 3 4 5

A-REASONS FOR NOT USING	B-EFFECTIVESNESS RANKING
( )Lack of space	( )Not effective
( )Lack of time	( )Moderately effective
( )Not suitable for content	( )Very effective
( )Not suitable for students	
( )Not available	Comments_____
( )Other	

Answer Question 6 only if you taught English

6. In Questions **6a,b,c,d**, please indicate the frequency of use of the following techniques or teaching aids in your BEST or WISE English classes. Use the scale at the right. →

ALWAYS
ALMOST ALWAYS
OFTEN
SELDOM
ALMOST NEVER
NEVER

Next-If you select 4 or 5 check one or more reasons in Box A.
If you select 0, 1, 2 or 3 check one response in Box B.

6a. Phonics Exercises

a. 0 1 2 3 4 5

A-REASONS FOR NOT USING
( )Lack of space
( )Lack of time
( )Not suitable for content
( )Not suitable for students
( )Not available
( )Other

B-EFFECTIVESNESS RANKING
( )Not effective
( )Moderately effective
( )Very effective

Comments_____

6b. Role Playing

b. 0 1 2 3 4 5

A-REASONS FOR NOT USING
( )Lack of space
( )Lack of time
( )Not suitable for content
( )Not suitable for students
( )Not available
( )Other

B-EFFECTIVESNESS RANKING
( )Not effective
( )Moderately effective
( )Very effective

Comments_____

6c. Audio Taping Student Stories

c. 0 1 2 3 4 5

A-REASONS FOR NOT USING
( )Lack of space
( )Lack of time
( )Not suitable for content
( )Not suitable for students
( )Not available
( )Other

B-EFFECTIVESNESS RANKING
( )Not effective
( )Moderately effective
( )Very effective

Comments_____

6d. Small Group Discussions

d: 0 1 2 3 4 5

A-REASONS FOR NOT USING
( )Lack of space
( )Lack of time
( )Not suitable for content
( )Not suitable for students
( )Not available
( )Other

B-EFFECTIVESNESS RANKING
( )Not effective
( )Moderately effective
( )Very effective

Comments_____

PART B

7. How would you rank the following topics/activities for future professional development workshops **for yourself.**

Not Important	Marginally Important	Moderately Important	Very Important
1	2	3	4

	Not Important	Marginally Important	Moderately Important	Very Important
a. Motivating adult learners	a. 1	2	3	4
b. Using Teaching Aids	b. 1	2	3	4
c. Updating speciality (Mathematics)	c. 1	2	3	4
d. Updating speciality (English)	d. 1	2	3	4
e. Questioning Techniques	e. 1	2	3	4
f. Diagnosing Student Learning Problems	f. 1	2	3	4
g. Planning Specific Lessons	g. 1	2	3	4
h. Study Skills	h. 1	2	3	4
i. Problem Solving Techniques (Mathematics)	i. 1	2	3	4
j. Practice Teaching Lessons (videoed)	j. 1	2	3	4
k. Experienced BEST/WISE teachers presenting lessons (If you selected Moderately or Very Important for #7k, please list specific topics from the BEST or WISE curriculum.)	k. 1	2	3	4

_____
_____
_____
_____

l. Other suggestions for professional development activities:

_____
_____
_____
_____

PART C

Directions: The following section contains things that a teacher of adults might do in a classroom. You may find some of them desirable and find others undesirable. For each item please respond to the way you most frequently practice the action described in the item.

Your choices are Always, Almost Always, Often, Seldom, Almost Never, and Never.

On the answer sheet provided for this section,
fill in circle **0** if you **always** do the event;
fill in circle **1** if you **almost always** do the event;
fill in circle **2** if you **often** do the event;
fill in circle **3** if you **seldom** do the event;
fill in circle **4** if you **almost never** do the event; and
fill in circle **5** if you **never** do the event or if the item *does not apply* to you.

IMPORTANT -Please use an HB pencil, so that Part B can be machine marked. Do NOT fill in the information section (name, age, etc.) of the answer sheet.

1. I allow students to participate in developing the criteria for evaluating their performance in class.
2. I use disciplinary action when it is needed.
3. I allow older students more time to complete assignments when they need it.
4. I encourage students to adopt middle class values.
5. I help students diagnose the gaps between their goals and their present level of performance.
6. I provide knowledge rather than serve as a resource person.
7. I stick to the instructional objectives that are written at the beginning of the program.
8. I participate in the informal counseling of students.
9. I use lecturing as the best method for presenting my subject material to adult students.
10. I arrange the classroom so that it is easy for students to interact.
11. I determine the educational objectives for each of my students.
12. I plan units which differ as widely as possible from my students' socio-economic backgrounds.
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.
14. I plan learning episodes to take into account my students' prior experiences.
15. I allow students to participate in making decisions about the topics that will be covered in class.
16. I use one basic teaching method because I have found that most adults have a similar style of learning.
17. I use different techniques depending on the students being taught.
18. I encourage dialogue among my students.
19. I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.
20. I utilize the many competencies that most adults already possess to achieve educational objectives.

21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.
22. I accept errors as a natural part of learning.
23. I have individual conferences to help students identify their educational needs.
24. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.
25. I help my students develop short-range as well as long-range objectives.
26. I maintain a well disciplined classroom to reduce interferences to learning.
27. I avoid discussion of controversial subjects that involve value judgements.
28. I allow my students to take periodic breaks during class.
29. I use methods that foster quiet, productive desk work.
30. I use tests as my chief method of evaluating students.

31. I plan activities that will encourage each student's growth from dependence on others to greater independence.
32. I gear my instructional objectives to match the individual abilities and needs of the students.
33. I avoid issues that relate to the student's concept of himself/herself.
34. I encourage my students to ask questions about the nature of their society.
35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.
36. I have my students identify their own problems that need to be solved.
37. I give all my students in my class the same assignment on a given topic.
38. I use materials that were originally designed for students in elementary and secondary schools.
39. I organize adult learning episodes according to the problems that my students encounter in everyday life.
40. I measure a student's long term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.

41. I encourage competition among my students.
42. I use different materials with different students.
43. I help students relate new learning to their prior experiences.
44. I teach lesson units about problems of everyday living.

APPENDIX B

CLASSROOM OBSERVATION FORMS FOR ENGLISH AND MATHEMATICS

BEST /WISE CLASSROOM OBSERVATION

ENGLISH

Teacher_____

Date_____

Location_____

Time_____

Program: BEST___WISE____ Module1__2___3__4___

Teacher Background Information:

1 SEX___ 2 CERTIFIED TEACHER: YES____ NO____

3 SUBJECTS TAUGHT: ENG___MATHS___BOTH___

4 PROGRAMS:

BEST____WISE____BOTH_____

5 LEVELS TAUGHT:BEST- ONLY 1&2____ONLY 3&4____ALL____

WISE-ONLY 1&2____ONLY 3&4____ALL____

6 NUMBER OF COURSES TAUGHT (APPROXIMATELY)

BEST 1-10____ 11-20____ 21 PLUS____

WISE 1- 2____ 3 PLUS____

7 WHERE: NTUC___ COMPANY___ VOC INST____ OTHER____

A-TIME SCHEDULE

1

B-ENVIRONMENT

2 DIFFERENT GROUPINGS

3 SUPPORTIVE ATMOSPHERE (eg.not condescending, friendly, humour)

4 INTIMATE SURROUNDINGS

5 FLUENCY (teacher and students)

6 ATTENTION TO ALL STUDENTS-(eye contact and opportunity to speak)

7 CONTINUOUS FEEDBACK

8 UTILIZATION OF ADULT EXPERIENCES & BACKGROUND

9 DISCIPLINE-too much, too little?

10 MOTIVATION TECHNIQUES

C-PRESENTATION

1 1 TECHNICAL COMPETENCE-(tape recorder, OHP, whiteboard organization, flip chart organization)

1 2 SPEECH:

a-PACE (not too slow or too fast)

b-VOICE (clear, loud, too soft)

c-PARAPHRASING

d-OVER-USED EXPRESSIONS

1 3 FLEXIBILITY (leave presentation if warranted by question, but don't go off on a tangent for too long)

1 4 MORE THAN ONE SENSE EXPLOITED (visual, auditory, tactile)

1 5 CLEAR EXPLANATIONS (gestures, acting, opposites, mime)

16 ADJUSTMENTS MADE FOR INDIVIDUAL DIFFERENCES
(Assignments, time, accomodations)

D-CONTENT
17 STUDENT TALK/TEACHER TALK RATIO

18 LOTS OF VARIED OPPORTUNITY FOR STUDENT TALK (eg. little foreign language, 'buzzing' with talk)

19 QUESTIONING TECHNIQUES (eg. open-ended, more than one-word answers, students ask questions of each other, no rhetorical questions used such as"Any questions?"

20 VARIETY:
a-Tape listening with follow up-(tape split up into sections)

b-Small group discussion

c-Pairs

d-'Lists' of things

e-Role Play

f-Use of OHP, Whiteboard, Flip Chart, Tape Recorder

21 VOCABULARY CHECK (good tangible evidence of improvement)

E-OVERVIEW

22 OBJECTIVES

23 ENVIRONMENT

24 PRESENTATION

25 CONTENT (Knowledge and command of subject)

26 HOMEWORK CHECK

27 ASSIGNMENT

BEST /WISE CLASSROOM OBSERVATION

MATHEMATICS

Teacher_____
Date_____
Location_____
Time_____
Program: BEST___WISE____ Module1__2___3__4___

Teacher Background Information:
1 SEX___ 2 CERTIFIED TEACHER: YES____ NO____
3 SUBJECTS TAUGHT: ENG___MATHS__BOTH___
4 PROGRAMS: BEST____WISE____BOTH_____
5 LEVELS TAUGHT:BEST- ONLY 1&2____ONLY 3&4____ALL____
WISE- ONLY 1&2____ONLY 3&4____ALL____
6 NUMBER OF COURSES TAUGHT (APPROXIMATELY)
BEST 1-10____ 11-20____ 21 PLUS____
WISE 1- 2____ 3 PLUS____
7 WHERE: NTUC___ COMPANY___ VOC INST____ OTHER____

A TIME SCHEDULE
1

B ENVIRONMENT
2 DIFFERENT GROUPINGS

3 SUPPORTIVE ATMOSPHERE (eg.not condescending, friendly, humour)

4 INTIMATE SURROUNDINGS

5 FLUENCY (teacher and students)

6 ATTENTION TO ALL STUDENTS (eye contact and opportunity to speak)

7 CONTINUOUS FEEDBACK

8 UTILIZATION OF ADULT EXPERIENCES & BACKGROUND

9 DISCIPLINE-too little, too much?

10 MOTIVATION TECHNIQUES

C PRESENTATION

1 1 TECHNICAL COMPETENCE-(tape recorder, OHP, Whiteboard organization)

1 2 SPEECH:

-PACE (not too slow or too fast)

-VOICE (clear, loud, too soft)

-PARAPHRASING

-OVER USED EXPRESSIONS

1 3 FLEXIBILITY (leave presentation if warranted by question, but don't go off on a tangent for too long)

1 4 MORE THAN ONE SENSE EXPLOITED (auditory, visual, tactile)

1 5 CLEAR EXPLANATIONS (gestures, acting, opposites, mime, models, drawings)

16 ADJUSTMENTS MADE FOR INDIVIDUAL DIFFERENCES
(Assignments, time, accomodations)

CONTENT

17 STUDENT ACTIVITY/TEACHER TALK RATIO

18 LOTS OF VARIED OPPORTUNITY FOR STUDENT PARTICIPATION AND TALK

19 QUESTIONING TECHNIQUES (eg. open-ended, more than one-word answers, students ask questions of each other, no rhetorical questions used such as "Any questions?")

20 VARIETY:

a-Lecture/explanation

b-Demonstration (models, measurements)

c-Small group Work

d-Pair Work

e-Peer Help

21 PROBLEM SOLVING TECHNIQUES/ACTIVITIES _Practical Applications

OVERVIEW

22 OBJECTIVES

23 ENVIRONMENT

24 PRESENTATION

25 CONTENT (Knowledge and command of subject)

26 HOMEWORK CHECK

27 ASSIGNMENT

APPENDIX C

TEACHER INTERVIEW FORM

INTERVIEW FORM

PART A

1 SEX___ 2 CERTIFIED TEACHER: YES____ NO____
3 SUBJECTS TAUGHT: ENG__MATHS__BOTH__
4 PROGRAMS: BEST___WISE___BOTH____
5 LEVELS TAUGHT: BEST- ONLY 1&2___ONLY 3&4___ALL___
WISE- ONLY 1&2___ONLY 3&4___ALL___
6 NUMBER OF COURSES TAUGHT (APPROXIMATELY)
BEST 1-10___ 11-20___ 21 PLUS___
WISE 1- 2___ 3 PLUS___
7 WHERE: NTUC___ COMPANY___ VOC INST___ OTHER___
8 CURRENT ASSIGNMENT:
BEST__WISE__ENG__MATHS__MODULE___
NAME(optional)_____ PHONE _____

PART B-FUTURE PROFESSIONAL DEVELOPMENT NEEDS

Teachers' comments on the questionnaire identified 2 objectives for future inservices:
-to become aware of latest theories, techniques and methods (external)
-to share experiences, problems and ideas with each other (internal)

9 Which of these is more important in your view (the external or internal)?

10 The following is the priorized list of identified Professional Development needs. How would you rank each one? (and comment)
(Very Important, Important, Not important)

a Motivation-ways to overcome shyness and get students speaking more

b Diagnosing learning problems

c Updating Speciality (Eng) -level of proficiency of teachers' English- [Grammar, esp tenses often mentioned, phonics/phonetics]

d Problem Solving Techniques (Maths)

e Questioning Techniques

f Updating Speciality (Maths)

g Study Skills

h Using Teaching Aids

i Educational psychology

j Planning Specific Lessons

k Practice Teaching Lessons (Videoed)

l Lessons Presented by Experienced BEST/WISE Teachers

m Credit courses & recognizable certification-(correspondence courses)

PART C-AVAILABILITY OF RESOURCES

11 How would you rank the importance of the following identified teacher resource needs: (Very Important, Important, Not important)

a Reference books for teachers on teaching different levels of BEST/WISE

b Teachers' library with reference books on teacher training and adult learning

c Collections of games worksheets activities on certain topics

d Literature/reading materials for students-folk tales and short stories where vocabulary used in their lessons are effectively applied in different situations

e. Maths models and measurement tools

f Newsletter-periodically sent to BEST/WISE teachers in order to share experiences

g Gather feedback from students on the courses, the teachers, and the methods of teaching. Share the results with the teachers in written form and in discussion sessions

h Item bank for teachers to set simple tests for BEST/WISE English and Maths effective for that particular group (if teachers have the time and are keen to do so)

i 'Working' OHP available in all centres

j Make transparencies available on different topics; organize ways to share effective transparencies with each other

PART D-PALS CORROBORATION

Given certain restrictions,eg class size, pressure of time to complete curriculum, pressure of external exam, limitations on facilities, how often are you able to do any of the following

12 Learner centered activities

a vary the educational objectives for certain students

b use tests to diagnose student learning problems (rather than for grades)

13 Personalizing instructions

a allow older students more time to complete work

b vary the assignments on a given topic

14 Relating to experiences

a relate the class content to the students everyday experiences (work or home)

b plan activities that will make the students more independent learners

15 Assessing student needs

a discuss with the class their long and short term goals (and the gap between)

b have individual conferences with your students to discuss their learning needs and goals

16 Climate building

a provide opportunities for the students to talk among themselves (social interaction)

b provide the opportunity for each student to to display some strength or competence, even though not class content related.

17 Participation in learning process
a rearrange the classroom so that it is easier for students to interact

b allow the students to make some decisions about topics that will be covered

18 Flexibility for personal development
a act as a resource person rather than a provider of knowledge

b permit discussion of controversial topics

PART E-PERSONAL PREFERENCES FOR CLASSROOM TECHNIQUES and METHODS

What are some techniques/methods that you have found most successful in your classes? least successful?

19 ENGLISH
a-Most successful

b-Least successful

20 MATHEMATICS
a-Most successful

b-Least successful

PART F-FEASABILITY OF PARTICIPATORY ACTION RESEARCH

21 What is necessary to make future inservice training of adult basic education teachers more effectiye in Singapore?

The opinions of the BEST/WISE teachers who responded to the written questionnaire and these personal interviews will be considered by the VITB in planning future inservice training, curriculum revisions and administrative planning. It might be possible for the teachers to take become more involved in this, i.e.Participatory Action Research.
(Participatory Action Research is a process in which the 'community' participates in the analysis of its own reality in order to present problems. It involves collective investigation, collective analysis, collective action. In an educational setting it can strengthen the awareness of the teachers of their own abilities and resources and therefore gather support for innovations,- or for the status quo if that is their conclusion.)

22 Do you think many teachers would want to take a more active role in these activities and have the time to do so,-would you?

APPENDIX D

CATEGORIES OF CLASSES OBSERVED

TEACHER STATUS

SUBJECT	CERTIFIED	NON-CERTIFIED	TOTALS
BEST English	5	3	8
WISE English	8	2	10
BEST Maths	1	0	1
WISE Maths	2	1	3
TOTALS	16	6	22

TYPE OF CENTER

Company Centers	8
VITB Centers	8
NTUC/PAP	6
TOTAL	22

MODULE BREAK-DOWN

BEST ENGLISH		WISE ENGLISH	
MODULE 1	3	MODULE 1	1
MODULE 2	1	MODULE 2	2
MODULE 3	2	MODULE 3	3
MODULE 4	2	MODULE 4	4

BEST MATHS		WISE MATHS	
MODULE 4	1	MODULE 2	1
		MODULE 3	1
		MODULE 4	1

APPENDIX E

TEACHERS' COMMENTS

COMMENTS

5aA OHP Transparencies-Reasons for Not Using

1 OHP not readily available or broken, difficult to get transparencies; better if OHP was part of classroom equipment-9*
2 Distracts students
3 Cumbersome-blackboard serves purpose just as well
4 Students prefer the teacher to explain and write at the same time so that they can understand how each step is derived

*-indicates the number of similar statements

5aB OHP Transparencies-Effectiveness Rating

1 Students get to work more enthusiastically as they are presenting; participation almost becomes competitive-2
2 Draws students attention-2
3 They help save time in presenting the content
4 Highlights important points/contents
5 Information is presented more clearly **
6 I was not given a set, had to make my own
7 Text book explanations are clear enough
8 Answers should not be shown with questions
9 Adult learners prefer direct communication interpretation methods
10 Classrooms are small-strains students' eyes
11 Not applicable in prison centres

**-line separates positive from negative responses

5bA Models and Measurement Tools-Reasons for Not Using

1 Not given any-brought along my own
2 Students are familiar with such tools-2
3 Not sure if these were available, resorted to drawings

5bB Models and Measurement Tools-Effectiveness Rating

1 Students were enthusiastic
2 Very effective-students found it much easier to visualize, visual approach attracts learners-4
3 Apply to practical daily life-2
4 Not readily available-had to borrow them from my old school-2
5 Request VITB to provide ASAP

6 Useful only when students are unable to grasp the concept, reinforces concepts-2
7 Not much time to use models in prisons
8 Understand better without unnecessary explanations

5cA More than one Problem Solving Technique-Reasons for Not Using
1 Not necessary, -do not want to confuse students

5cB More than one Problem Solving Technique-Effectiveness Rating
1 Moderately effective, although too many confuse the students-3
2 The students like it and were able to understand most of the time,churns up their interest-3
3 Sharing with students and also wider application
4 Due to differences in perception, students should be encouraged to see a problem from various angles, learners feel safe with alternative ways of solving problems-2
5 The techniques used are pair work and group work
6 Techniques should be made into transparencies
7 Students tend to only remember one solution, some prefer to stick to one technique-3
8 Students usually preferred the shortest fastest way, tend to use their own methods anyway
9 Many workers/students try techniques learned in their earlier school days
10 Should give them a concrete idea

5dA Small Group Work-Reasons for Not Using
1 Class is very small already(5-10)
2 Students generally preferred their own groups or peer tutoring
3 Too many lessons to cover
4 Difficult interaction amongst students

5dB Small Group Work-Effectiveness Rating
1 Very effective for students who do not speak English well
2 Students learn better with more discussions, enjoyed group work. It is an easy way to share their opinions-3
3 Better students helped weaker students, students learn better when they teach others-3

4 Some are brighter and want a faster pace
5 Some students may be too shy to seek help from their peers, this way they are encouraged to do so
6 Teacher acts as a co-ordinator when peer work is going on
7 Encountered some problems when there was not a common language
8 Works only when some missed classes and have a lot to catch up on
9 Students reluctant to be leaders other than to give explanations in their mother tongue-2
10 Some students shy and hesitate to take part-3
11 Students prefer individual work-2
12 Isolation atmosphere occurs amongst groups-generates competition
13 Depends on students' mood

6aA Phonics Exercises-Reasons for Not Using
1 Not enough materials
2 Students felt it was a waste of time
3 Difficult to explain to my deaf students
4 Accuracy of pronunciation has no priority-2
5 Lack of knowledge

6aB Phonics Exercises-Effectiveness Rating
1 Helps in their spelling and reading-3
2 Good response from students-4
3 Inculcates correct pronunciation-4
4 For groups of letters only
5 Increases self confidence among students
6 Only common and useful ones are taught
7 Students asked if they could listen at home, some felt awkward-2
8 Use only after students have become quite comfortable with each other
9 Too taxing and insufficient time-2
10 Only a few students need this exercise, it is done casually or individually when necessary

6bA Role Playing-Reasons for Not Using
1 Found that students did not like it
2 Students were too shy; did not respond-6

6bB Role Playing-Effectiveness Rating

1 Adult students too shy and not spontaneous, need to speak up (students in Modules 1 & 2 lack confidence)-24
2 Students would correct each other's mistakes and enjoyed the verbal experience and performance
3 Helps in class interaction and forces students to participate-7
4 Lessons come alive with laughter and fun-also helps students in learning how to express themselves-8
5 Students could relate to their daily environment-2
6 Moderately effective for Modules 1 & 2
7 Sometimes success rate depends on mood of class
8 Should not be used for lessons close to the exam
9 Made use of roleplay only when lesson required it
10 Better reception from younger students, older students tend to be more inhibited-3
11 Lack of time, not everyone gets to read-3

6cA Audio Taping Student Stories-Reasons for Not Using

1 Students too shy to volunteer-5
2 Students unable to express themselves-2
3 Lack of facilities- and time-6
4 Students view this as a deterent to class attendance
5 Encourage students to do so at home on their own.
6 Difficult with deaf students
7 Scares the students
8 Not necessary

6cB Audio Taping Student Stories-Effectiveness Rating

1 Learners are motivated to put their thoughts into speech
2 Helps students to be exposed to listening to conversations in the spoken language, very effective
3 Holds their interest and is a change from transparencies and lecture teaching,
4 Good for self-evaluation
5 Social relevance
6 Students were enthusiastic at first but lost interest
7 Sometimes tapes are too fast, especially for BEST modules 1,2
8 Students too shy and refused to participate, slow response-3
9 Only read out good essays
10 Used the provided tape for listening
11 Some students were unable to hear and understand clearly what's on the listening exercises

6dA Small Group Discussion-Reasons for Not Using

1 Importance not emphasized
2 Unable to communicate in English
3 Large group makes it more difficult to control-2
4 Better for WISE 3, because students have better command of the English language and have the skills to communicate
5 Deaf students find it hard to understand the concept
6 Students preffered class discussions to small group discussions. However, I encouraged them to discuss among themselves.

6dB Small Group Discussion-Effectiveness Rating

1 Helps to break the ice-3
2 Discussions very effective on local topics or topics of interest to them, they have more ideas to share-2
3 Students participate, teach one another and come up with more reasons, answers and ideas; creates a better learning atmosphere. Students are more willing to open up in smaller groups. Overall, students enjoy it-13
4 Forces students who are more shy to speak up and be more confident
5 Gives students a better understanding of the subject
6 Provided they get along and feel secure and are willing to communicate; sometimes they are too shy-5
7 Moderately effectively for Modules 1 & 2
8 Effectiveness varies with classes
9 Sometimes difficult to get a leader among the group-2
10 Students tend to converse in dialects unless closely supervised-4
11 Sometimes takes up quite alot of time
12 Too advanced for students especially in BEST
13 Too few students, poor attendance-2
14 Pairing them is more effective
15 Students still need trainer's guidance and leadership
16 Not proficient in the language used
17 Presentation of views by participants is limited
18 Students regard themselves as experienced enough
19 Discussion dominated by most vocal students (Others need to speak up more)-6

71 Specific Lessons for Experienced BEST/WISE Teachers to Present

1 Vocabulary, spoken English, direct and indirect speech, comprehension-4
2 Grammar (especially tenses)-12
3 Initial lessons of BEST Module 1 and more complex lessons of Module 4 to demonstrate without resorting to translation
4 Writing composition,- techniques and sentence structure, doing summaries, how to write a good essay, participles and noun phrases-6
5 First lesson in BEST and first lesson in WISE-3
6 Especially topics in which female teachers have no background knowledge, ie. National Service(WISE 2), Nooks & Crannies(WISE 3)
7 WISE 2 Unit 1 Lesson 6-Setting Goals
" 2 " 7-Your Role in the Family-2
" 3 " 16-Neighbours
" 4 " 21 Resumes
8 WISE Module 1 Lesson 35
9 Mensuration and Algebra & Graphing-Module 4 BEST-2
10 WISE Maths Module 3 Chapter 1
11 Angles and parallel lines
12 Approximation in measurement, probability, and graphs(all in Mathematics Module 4)
13 Questioning techniques
14 Individual presentation on lessons would be very effective although it is a slow process-2
15 I have no specific topics in mind but it would be nice to see a presentation by an experienced teacher-3
16 Most of the topics are very suitable and stimulate interest among the students. Some vocabulary words are rather difficult, but after coaching and explaining through examples they are able to understand
17 Marginally important because different teachers have different styles of teaching the same topic, eg. in BEST grammer singulars and plurals, present, past and future tenses
18 BEST programme lessons(overall) in English is "simple and direct" in approach which appeals to learners. WISE programme lessons(overall) in English has to be taught to learners with different tempos according to their levels of understanding

7 m Other Suggestions for Professional Development Activities

1 Seminars, workshops to help teacher stay aware of latest methods, aids and teaching techniques and share common problems and ideas on a regular basis, keep each other motivated, brainstorming-40

2 Organize more workshop on use of teaching aids, slide projectors, audio recording, film strips, etc.-2

3 Activities that overcome student shyness and stimulate student participation, but don't take up too much of the teaching time.-7

4 It is still very book oriented, typically Singaporean style. Ways must be found to get students to speak more and create an informal atmosphere where they can talk more

5 Videotape actual classes and use in a seminar-4

6 Development of specific diagnostic techniques for student learning problems -2

7 Level of English proficiency of many English teachers is not adequate.

8 Please share with us how to effectively transfer learning to a class made up of students with different proficiency levels (English). Some of the students in Module 2 should rightfully be in Module 1

9 Educational Psychology is also important and should be thought of as a lesson-2

10 Advice on ways to help students who are very keen to learn but have problems recognizing/remembering words/semi-dyslexic-2

11 More concentration on phonics-3

12 Try to raise confidence levels of teachers; students will feel that they are not wasting their time if they are being taught by a teacher who they have faith in

13 Advance courses for upgrading present knowledge and skill-3

14 Teachers should know their own characteristics, eg. understanding, fair, sympathetic, helpful etc. and their general behavior in the classroom to gain the respect, and learn to interact better with students-2

15 More role playing in future course-2

16 An intensive course in techniques of composition

17 Motivating the adult learners-probably on how and what to do so that the attrition rate is reduced; understanding the adult learners-their shyness, inability to communicate etc -6

18 Marking techniques, explaining skills, intonation, and pronunciation

19 Understanding, learning and motivating in the Singapore context and techniques for adapting in the classroom

20 Counselling-ie. How to encourage keen learners to be consistant in class attendance despite work commitments and being very weak in the subject

21 Dialogues, stories, and discussions between the students

22 Separate training courses for Mathmatics teachers as the teaching aids, questioning techniques and diagnosing student learning problems are quite different from English students themselves

23 We still need to brush up on our English. Perhaps encourage the BEST/WISE teachers to become more proficient in oral and written English by organizing courses of phonetics and modern grammer-2

24 Ways to link thinking skills to structured approach in teaching essays and comprehension to adults

25 Make available correspondence overseas courses on adult ed for interested part-time or full-time study

26 Select some BEST or WISE teachers for an exchange programme so that teachers may learn how the adult education programmes are conducted-2

THE FOLLOWING COMMENTS ARE CONCERNED WITH RESOURCE MATERIALS, CURRICULUM MATERIALS, AND ADMINISTRATION OF PROGRAMS.

RESOURCES

27 Teacher's library with books on teacher training and adult learning resources

28 Recommend reference books for teachers for the subject levels taught-2

29 More models and measurement tools developed for group use; each group could be supplied with a model and tools for experiment and discussions-this is especially lacking in NTUC centres

30 Newsletter for practicing W/B teachers

31 Gather feedback from students on the courses, teachers, and the methods of teaching. Share the results with the teachers in the form of discussion sessions

32 Lessons can be made more interesting by supplementing folk tales or short stories to encourage reading

33 Item bank for teachers to set simple tests for BEST/WISE English and Maths effective for that particular group(if teachers have the time and are keen to do so)
34 Should recommend more reading materials or literature for Wise students where vocabulary used in their lessons are effectively applied in different language structure
35 Collate games, worksheets, activities for certain topics in all modules into one booklet and distribute to teachers.-2

CURRICULUM

36 Lessons must be updated with current changes-2
37 Analyze students motivation levels and design and develop curriculum along those guidlines-2
38 Include phonics exercises as I feel this is important for Modules 1&2-make time for teaching this-3
39 Include a little English literature in the lessons
40 Grouping like ability pupils in same class could make lessons more stimulating
41 Allow for more time for each module, I found that we were skimming through at the end-2

ADMINISTRATION

42 Provide recognizable certification for those who take training sessions-2 (eg. My 5 years of BEST experience and training is not recognized by Trinity College of London's English teaching courses.)
43 Regular feedback update on responses, success or failure rates at the end of each module-3
44 Not all students are proficient or can join the BEST classes even at Module 1. Some sort of bridge course should be looked into for these beginners
45 Take students on tours of factories etc. to familiarize
46 Better sized classrooms, better desks, ventilation, etc. makes for a better learning atmosphere
47 Smaller number of pupils per class and more variety of texts
48 If possible, there should be a permanent staff of BEST and WISE teachers
49 NTUC Centres must show their appreciation to the teachers. Make sure that they offer help when a student needs to get permission to be transferred from one centre to another

VITA

Madeline Needham

POST-SECONDARY EDUCATION:

Carlow College
Pittsburgh, Pennsylvania
1953-Bachelor of Arts

University of Alberta
Edmonton, Alberta
1968-Diploma After Approved Degree

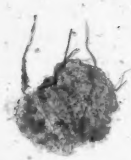
WORK EXPERIENCE:

Geophysicist
Gulf Oil Corporation,
Pittsburgh, Pa. and Calgary, Alberta
1953-1955

Mathematics Teacher
Edmonton Separate School Board
Edmonton, Alberta
1967-1969

Mathematics Instructor
Alberta Vocational College
Edmonton, Alberta
1973-1979

Senior Instructor-Mathematics
Alberta Vocational College
Edmonton, Alberta
1979-1983



Curriculum Development Specialist
Vocational Industrial Training Board
Singapore
1983-1985

Chairman/Learning Resources and Instructional Materials
Alberta Vocational College
Edmonton, Alberta
1985-present

ACTIVITIES/COMMITTEES

Member of the Visiting Committee for Institutional Development for Alberta Vocational College, Lac LaBiche
1978

Member of the Institutional Development Plan Committee for Alberta Vocational College/Edmonton
1979

Chairman of Adult Basic Education Committee-identified a profile of the functional skills needed by adults today
1979-1982

Presented paper at Association For The Development of Computerized Instructional Systems (ADCIS) Conference in Atlanta on the use of the PLATO Basic Skills Program at Alberta Vocational College
1981

In Singapore designed and developed a basic math curriculum which consisted of:
-Objectives and curriculum structure
-4 Mathematics Modules
-Teachers' Resource Book
-A Portable Teaching Aids Kit
-Related placement tests, progress tests and final examinations
1983-1985

Developed a program for learning disabled adults at the Alberta Vocational College/Edmonton
1986